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FOREIGN DIRECT INVESTMENT AND COMPETITIVENESS IN THE ROMANIAN MANUFACTURING

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Abstract. The objective of the analysis is the static (the database refers exclusively to year 1998) evaluation of the competitiveness of Romanian manufacturing, depending on the ownership-type. A ternary ownership-type structure is considered: the prevailing foreign-owned capital, the prevailing Romanian private capital and the prevailing state capital. The place, the share, the performance and the impact of the foreign ownership in the Romanian manufacturing are described.

The methodology of the analysis is subordinated to the signification given here to the concept of *competitiveness: "the capacity of producing and selling profitably, both on the domestic and international market"*. Moreover, taking into account the large share of losses in the '98 Romanian manufacturing (approximately one third of the firms, which account for approximately half of the total of fixed assets), two sectors were defined and individually analyzed: *the sector of the profitable firms* and *the sector of the unprofitable firms*.

The relation of the turnover, the exports, the productivity, the investment, the materials, etc. with the profits and the losses are considered in connection to the ownership-type. Finally, a competitiveness criterion is defined. The criterion is implemented, taking into account the ownership-type, to evaluate the Romanian manufacturing industry, as a whole and at NACE-division level.

Chapter I
The theoretical bacground of the relationship foreign direct investment-competitiveness

I.1 Theoretical aspects

The existence of a *potential* positive impact of foreign direct investment (FDI) on the competitiveness of host-countries is widely acknowledged by investing companies, authorities of recipient economies, analysts. Presenting the coordinates of such an impact is the subject of a quite large number of studies, which sustain with concrete examples the positive effects induced by FDI through: the transfer of a complex package of resources (capital, technology, management and marketing skills); opening access to new markets; inducing microeconomic restructuring; generating spillover effects for local partners, suppliers or clients of the foreign affiliate, or in the rest of the economy; increased revenues to the state budget; and boosting exports. Disagreement appears as soon as the word potential is left aside. Those who unconditionally place themselves on neo-liberal positions will plead for the effectiveness of a positive impact irrespective of conditions. The anti-globalists will deny *a priori* such an impact, while, on a third position, are to be found those analysts who considers that assessments should be made only by a case-by-case approach. According to this third opinion, there are no generally accepted conclusions concerning the gains of the host-countries from FDI. These will depend on the concrete situation determined, on one hand, by the capabilities, interests and strategy of the investing firm and, on the other hand, by the development stage, the characteristics of the economic environment and the policies of the recipient state.

This paper addresses the specific aspect of FDI-competitiveness linkage under the major objective of Romania in the following years, that is joining the EU. Or, in its economic dimension, this process mostly depends on the speed at which the Romanian economy will be restructured and become more competitive. As shown before, foreign capital can play an important role in the respective process. We intend to evaluate the current effects of FDI on the competitiveness of the Romanian economy both at microeconomic level, that is at recipient firms level, and at macroeconomic level, that is their restructuring impact through a better allocation of resources.

The theoretical framework in which the restructuring role of FDI is more recently and frequently grounded is the competitive advantage theory of Michael Porter (Porter, 1992). Porter considers that the increased mobility of production factors and the major role of innovation in all respects (especially in what information technologies are concerned) severely limit the explanatory capacity of the neoclassical theory of international trade and the validity of its recommendation that countries should specialize according to their production factors endowment. Being competitive has become less a problem of maximizing results within a given environment and more and more a dynamic challenge for states and firms to generate innovation, to create new factors and to improve the existing ones. Porter designs his own structure of determinants of the competitive advantage of nations, at industry level. He considers competitiveness to reside mainly in the productivity with which a nation makes use of its resources in a certain economic activity. The competitive advantage are determined by that level of productivity that allows local firms to generate substantial and sustained exports to a significant number of countries or important FDI flows. At this point, we would like to stress a fact that derives from Porter's work and also from Dunning's important contributions to the study of international production and FDI effects in host-economies: *not only the generation of FDI, but also, even if at a different scale, receiving FDI is a measure of the competitiveness of an economy.*

Porter's theory supports the idea that, despite the globalization of production and trade, the competitive advantage is created in a national framework, nations, through their institutional, natural, cultural, economic characteristics ultimately determining the development of certain economic activities. The factors considered by Porter as determinants for the competitive advantage are grouped in four categories, the linkages between them being important as well. The system as a whole has a diamond type structure which also gives the name of Porter's model. The four categories of decisive factors for creating and sustaining national competitive advantages are the following (Porter, 1992, p.69-131):

F1. production factor endowment: human resources, both under a quantitative and qualitative aspect; natural resources; technical, scientific, market knowledge; capital- availability, cost, structure of the financial market; physical and business infrastructure. Given the present sophistication of production organization, the direct access to production factors no more represents a condition of competitiveness. Factor mobility, the prime role of created factors, especially technology, a sustained innovative process of creating new factors are presently such conditions;
F2. home demand characteristics, that is its level and structure, its degree of sophistication, its capacity of formulating anticipative needs. Home market expectations put pressure on the sellers, determining them to improve their offer, while demand anticipative requirements, anticipative as against other markets, can make home products competitive, through exports and FDI;
F3. the level of development of related and supporting industries. The competitive advantage in a certain industry is also determined by the performance of supplying or beneficiary industries;
F4. firms structures and strategies and home rivalry. This forth category of determinants is linked to the managerial culture as a factor which can influence firm organization and way of operation and as a potential source of competitive advantage. A managerial culture, which encourages a high degree of moral commitment of the members of an organization, reduces the

need for mutual surveillance and encourages cooperation among the members of the organization. While a set of principles which stresses respect of the authority at the cost of respect of the others will enhance the efficiency of hierarchies. Managerial culture is expressed by firm organization and way of operation but most of the firms don't create the culture, they inherit it. The British author Mark Casson (Casson, 1990, p.88-94), distinguishes between: (i) the technical aspects of a culture, which include a scientific outlook and influence the individuals' and firms' perception of the environment and hence the quality of the decision-making process in both the economic and technological spheres and (ii) the moral values of the society which influence economic performance by legitimating certain general principles of behavior and also by encouraging entrepreneurial commitments and determining the intensity with which individuals strive to honor these commitments. Some moral attitudes are far more entrepreneurial than others. The philosophy of voluntarism, for example, which legitimates the freedom of business is more favorable to the development of the entrepreneurial spirit than a value system which concentrates the coercive powers on institutions such as the state.

A competitive climate is decisive for creating and maintaining the competitive advantages of firms, because they are the economic actors whose performance on international markets substantiates the competitive advantages of a nation. Local rivalry is more visible and more direct than the international one and at least as important as this one.

In function of the main source of the competitive advantage at a certain moment, Porter defines *the stages of development of a nation*. In the presentation of these stages and of the role FDI can play we'll also take into account the contributions of John Dunning (1993, p.272-276) and of the Japanese author Terutomo Ozawa (Ozawa, 1992, *apud* Dunning, 1993, p.272).

S1. The stage of the production factor - driven competitive advantage. According to Porter's model, the first development stage is the production factor driven competitive advantage. He considers that the great majority of developing countries as well as the former centrally-planned economies from Eastern and Central Europe were in this stage at the beginning of the '90s. More than this, countries such as Canada and Australia were, according to the main source of competitive advantages, in the same first stage of development. Dunning shows that in this phase, FDI will be directed towards the primary sector and towards low-qualified labor-intensive manufacturing activities. It is a stage in which created production factors are scarce and hence their contribution in the economy is a modest one. In terms of policies, the states in this phase tend not to impose restrictions or performance criteria on FDI inflows. It is true that the lower the level of high national capabilities, the greater is the risk of enclave creation through FDI in the host-countries.

S2. The stage of the investment - driven competitive advantage. In this phase, the competitive advantages are mainly determined by the volume and quality of investments in modern technologies and production facilities, in developing a competitive physical and business infrastructure. According to Dunning, in this second stage of development, domestic investment share in gross domestic product (GDP) may rise from 5-8% to 15-20% (Dunning, 1993, p. 273). At the same time, there is an increase of expenditure on secondary education, public utilities, transport and communications. In this development stage, the sources of competitive advantages are likely to shift towards capital-intensive sectors, such as basic chemicals, iron and steel and ship-building; some smaller scale mechanical engineering activities; and the production of labor-intensive, but moderately knowledge-intensive consumer goods, such as electrical products, clothing, leather goods, processed foods and cigarettes.

The role of foreign capital will mainly depend on the development strategy promoted by the recipient countries governments. The options of the Japanese and South-Korean authorities in the '50s were to restrict the amount of inward investment and develop their own asset capabilities. On

the contrary, starting with the '60s, Ireland integrated FDI into its industrial development policy, succeeding in improving its economic performance, including the sharp increase of exports of electronic and pharmaceutical products. FDI inflows can play the role of initially stirring certain economic activities, generating "virtuous" circles of asset accumulation. The development of connection activities may also be sustained through FDI infusion or –on the contrary, which is the situation to be preferred– by local firms.

S3. The stage of the innovation - driven competitive advantage. Within Porter's model, the intensive investment phase is followed by the stage in which the competitive advantage of a nation mainly derives from its capacity to innovate. It is the phase in which the technological and managerial progress and the updating of the production facilities are mainly undertaken by indigenous firms. Local firms are now capable to compete in more and more specialized and narrow market segments, on the basis of global strategies, under the positive impact of a sophisticated local demand. Activities that rely on traditional production factors are transferred beyond the national borders. Most of the developed states are or have already passed over this stage. The localization of the innovative process doesn't mean that FDI can no more play a role in the development of host – economies. The increased mobility of competitive advantages in today world economy allows firms to develop specific ownership advantages which can be successfully used in innovation stage economies.

S4. As far as the next development stage is concerned, Porter's opinion differs from that of Dunning. Porter's model includes as the last stage of the development cycle the welfare phase. Welfare by itself is likely to cancel the motivation for sustained investment and innovation. Competitive advantages are more and more volatile and the return to the first stage of development, based on production factors and their costs become necessary. Porter considers that this is the case of Great Britain in which, at the beginning of the '90s, the low cost of the labor force played such a role. At its turn, Italy ran through the whole cycle, presently covering the innovation – led development stage.

In Dunning investment cycle path, the final and most advanced stage of economic development is the information processing stage, also called the post – industrial or services stage of development (Dunning, 1993, p. 274). Nevertheless, the author admits that countries like US, Japan, Norway and Germany, which according to his model are in this last stage, also meet the most significant conditions that place them in the innovation stage. They remain the leading spenders on research and development activities, which, for the most part, are directed towards the innovation of new products and production methods.

There should be also mentioned the fact that given the radical technological advances in computing and telecommunications, the traditional borders between manufacturing industries and services are likely to disappear. A proof in this respect is the increased content in services of material goods. In our opinion, all these indicate the possibility of considering the information processing stage as a superior phase of the innovation – led stage in Porter's model. Irrespective of its condition as a distinctive phase or an integral part of the third development stage in Porter's theory, the development of information processes strongly increases the number of linkages among companies. The success of countries in accumulating productive assets is depending more and more on local ability to coordinate the use of resources in a regional and even global environment. In this phase, the effects of FDI inflows in recipient countries are to be valued not only in terms of resource transfer, but mainly in terms of organizational practices and skills which can benefit by means of spillover effects the abilities and efficiency of local firms.

The sequence of development stages doesn't apply as such to all states; Dunning doesn't exclude the possibility for certain states to straddle more than one stage at a time. More than this, within a country, different regions may be at different stages of development.

Porter's model and Dunning's considerations theoretically substantiate the approach to FDI – competitiveness relation in Romania. The assumption we start from – assumption that we intend to evaluate as true or not – is that Romania is at the first stage of development, stage in which its competitive advantages are determined by production factor endowment and by the low cost of the respective factors. According to Porter and Dunning, in this stage, FDI are oriented towards primary production processes and towards manufacturing activities based on the low cost of the labor force, being able to play an important role in enhancing the economic performance and in improving the production factors quality. The centrally planned economies disposed to a very little extent, if at all, of the mechanics allowing for the creation of specialized production factors. The lack of domestic competition, the restriction or even the total call off of the demand role in the economy – not to speak of a possible pressure put on suppliers by a sophisticated demand –, the allocation of resources on non-economic criteria, all these led to competitive advantages based exclusively on factor cost and located in standardized market segments. As shown before, according to Michael Porter, transition economies are at the first stage of development of their competitive advantages. His opinion is shared by East-European analysts like Ferenç Vissi, once the president of the Competition Office in Hungary who brings about some new aspects, correlating the sequence of development stages with the degree of exposure of a country to the competition on international markets (Chikán and others, 1998, p. 12-13). While analyzing the place and role of foreign trade in Romania's economic development, the economist Valentin Cojanu approaches the problem of the competitive advantage stage of the Romanian economy. His conclusion is in conformity with the above-mentioned assumption. Romania, a country with economy in transition was in the first half of '90, at the first stage of development of its competitive advantage, *stage based on the production factors endowment* and their low costs. The author considers that, unfortunately, the actual potential of the Romanian economy doesn't allow for "its rapid development and advance towards superior stages" (based on investment and innovation) (Valentin Cojanu, 1997, p.208).

I.2 Approach directions

Our paper approaches the relationship between FDI and competitiveness only in the manufacturing industry. The reasons for this limitation reside in the fact that the restructuring impact of FDI flows as well as their spillover effects in the rest of the economy depend, to a great extent, on the volume and quality of the FDI flows in manufacturing.

Four main directions of analysis, **D1 – D4** will be approached

D1. Our analysis starts with a secondary, but still necessary step with respect to the objectives of the paper: defining the place, the share of the foreign sector in the Romanian manufacturing, at a general level, as well at NACE subsection level. By this, we intend we examine the validity of Dunning assertion that in the first development stage, FDI flows are mainly directed to low value-added manufacturing activities, which turn into account the low cost of labor force.

D2. The second natural coordinate of the analysis refers to FDI impact on the economic performance of recipient firms, the point from which every debate concerning FDI effects should start from. Given the fact that the great majority of FDI in Romania have been made in existing companies or within the privatization process and not in the form of greenfield investments**,** a complete analysis should be a dynamic one. This would solve the problem of causality, discriminating between 1) FDI impact on economic performance of recipient firms –*FDI impact on*

performance subsequently the FDI infusion– and 2) the degree of attraction of local firms by means of their economic performance, for foreign investors, which *influence the investment decision before the infusion of FDI*.

A correct approach of the subject should include the examination of the performance of the same company before and after receiving foreign capital. Unfortunately, some problems make difficult if not impossible for the time being such an approach: changing the ownership structure involves more than one stage (in Romania, joined ownership has still got an important share); there is an objective transition period after the infusion of foreign capital, transition whose impact on firms' performance cannot be neglected. Such restrictions would require a larger time span, which in Romania's case doesn't exist: the opening of the economy has only started at the beginning of the '90s. An alternative solution would be a case-by-case approach, which is not what we intend to do.

Most of the analysis carried on by east-European economists, including Romanian ones, are based on comparing the performance of companies with foreign capital with the average industry performance, or with the performance of local firms. To a great extent, this aspect was covered (Boşcaiu and others, 2000). Some of the conclusions of this study, relevant for the problems of competitiveness are to be interpreted and used in our paper too.

D3. At a third tier, we intend to deepen the analysis of competitiveness at the level of NACE divisions in manufacturing. The starting point consists in the observation that the condition of factors F1-F4 is reflected in the profitability of manufacturing and at firm level in the value of profits or in that of losses. In this respect, the analysis of profits and losses is an important part of the competitiveness analysis. In the analysis, we'll not explicitly approach the four categories of competitiveness determinants (factors F1-F4 mentioned above), but we'll *analyze in detail the profits and losses according to the ownership type.*

D4. Finally**,** we intend to determine the FDI role in the efficient allocation of economic resources within manufacturing, inclusively by comparison with the allocation carried on by companies with prevailing domestic capital. Specific indices will be used, among which the allocation diversity ratio.

1.3 Methodological comments

M1. **Defining the ownership structure of the company.** The first specification to be made refers to the ownership structure of the company. As far as the binary model "companies with foreign participation versus domestic companies" is not valid because of the lack of homogeneity of local capital, a ternary approach will be followed:
-*prevailing state-owned companies* (abbreviated **STATE**),
-*prevailing private-owned domestic companies* (abbreviated **PrivRO**),
-*prevailing foreign-owned companies* (abbreviated **FOR**).
These abbreviations will be systematically used in the paper (although licences according to the literary expression standards, abbreviations have the advantage of facilitating reading).

The term "prevailing" is used to identify the main source of the capital. Theoretically, prevailing foreign-owned companies (or, similarly, "prevailing state", or "prevailing domestic private") means the possession of at least 34% of the equity capital, but, in most cases, (in Romania), it is equivalent to the majority capital (more exactly, if the equity capital belongs to a certain ownership form in proportion of over 34%, than, in most cases, the respective ownership form represents over 50% of the equity capital). This approach is necessary to make possible the covering, within the analysis, of the companies with a joined ownership structure whose frequency in the Romanian manufacturing industry was in 1998 (and still remains) important.

M2. Description of the sample. Initially, there have been taken into account all the approximatively 2900 firms in manufacturing which, in 1997 and 1998, had an average number of employees of at least 50 people. Subsequently, there were excluded approximatively 120 firms from various reasons: incomplete, incorrect information, outliers or because in 1998 the weight of the trade activities in the turnover was of over 50% (although, according to the main object of activity declared, the firms belonged to manufacturing). Therefor, finally, *a sample of 2800 firms* was accepted for the analysis. In order to ensure the homogeneity of the paper and the possibility of subsequent computing of other indices, starting from those computed within the study, all the aggregations were made for this sample, even if for some indices the available data would have permitted to use a larger sample.

The initial intention was that the sample would be exhaustive, but finally, it wasn't (because of non-responses, incomplete, incorrect or untypical data). Thus, the sample is neither exhaustive nore random. This doesn't raise major problems given the fact that, at each subsection level, our data base covers at least 80% of the turnover. The conclusions of our analysis can be, hence, considered as representative for the Romanian manufacturing as a whole. In what the subsection analysis is concerned, the results must be interpreted separately, in connection with the number of firms in each subsection (see Annex 2, Table 4).

M3. The "sheep louse" firms, which parasite the Romanian industry were automatically removed from the data base, through the two selection criteria: firms with at least 50 employees and a weight of trade activities less than 50%.

M4. The data base at firm level which is used in this paper refers to the situation at the end of 1998. The analysis is nevertheless valid for the next two years as well, given the fact that FDI flows in 1999-2000 registered similar levels: 818.5 million dollars in 1998, 930.6 million dollars in 1999 and 865.1 million dollars in 2000 (The Trade and Industry Chamber of Romania, 2001.

Chapter II
The size and performance of the foreign sector in the Romanian manufacturing industry

II.1 The size of the foreign sector in the Romanian manufacturing industry

We will evaluate the share of the foreign sector FOR by examining he values of some parameters calculated in function of the three ownership types mentioned above. The following aspects will be taken into consideration: ownership structure of the capital, turnover, exports, investments, value-added, profits, number of employees. Each firm is classified as belonging to a certain NACE subsection according to the main object of activity (for the manufacturing industry, from EA, food, beverage and tobacco industry to EO, other industrial activities, see Table A1). The analysis refers to the situation at the end of 1998, but as shown before we consider it actual and valid for the present as well.

Fixed asset distribution. At the manufacturing industry level, the FOR companies account for 9.5% of the total fixed assets, against 29%, the PrivRO companies and 61.5%, the STATE companies. It is obvious that at the end of 1998, the share of FDI in the Romanian manufacturing industry was a low one. Nevertheless, at the level of NACE subsections, there are some branches in which the share of the predominantly foreign capital-FOR is higher: EM, electrical and optical equipment industry (27%); EI, industry of other products made of non-metallic minerals (20%); EG, chemical and synthetic and artificial fibers industry (18%); EA, food, beverage and tobacco industry (17,7%); EB, textile industry and of textile fabrics (17%).

Turnover. The shares of the three ownership forms in the aggregate turnover for the manufacturing industry were at the end of 1998 the following: 47% - the STATE companies, 39% - the PrivRO

companies and 14% - the FOR companies. The highest shares of FOR were to be found in: EM, electrical and optical equipment industry (34.8%); EC, leather and footwear industry (28.6%); EA, food, beverage and tobacco industry (26.4%); EG, chemical and synthetic and artificial fibers industry (26%); EB, textile industry and of textile fabrics (22.1%). The lowest shares of FOR companies in the subsection turnover were in EF, EJ, EH, EL, and respectively EN as it follows: EF, industry of oil processing, coal coking and nuclear fuels processing - 0%; EJ, metallurgical industry – in 1998, only 0.1%, but the share increased afterwards; EH, rubber and plastics manufacturing industry - 4.1%; EL, machine and equipment building industry- 4.5% and, finally, EN, industry of transport vehicles - 5.6%.

Exports. As regards the shares of FOR companies in exports of the subsections, the respective companies account for over 20% of the turnover- in the following branches: EB, EK, EM, EG, EC, ED and EE. The percentages are the followings: 28% in the textile industry and of textile fabrics; 27% in the metal structures, metal products industry (except machines, equipment, installations); 27% in the electrical and optical equipment industry; 25% in the chemical and synthetic and artificial fibers industry; 22% in the leather and footwear industry, in the wood working industry (except furniture) and in the cellulose, paper, cardboard, paper and cardboard products industry. For the manufacturing industry as a whole, over 50% of exports are generated by the STATE companies (approximately 52% of the STATE companies, while the PrivRO and FOR firms account for 34.5% and 13.4%, respectively).

Investments. The contribution of FOR companies to the investment process was in 1998 of 23% for the manufacturing industry. Shares almost twice as big were registered by the FOR sector in: EG, the chemical and synthetic and artificial fibers industry (49,6%); EC, leather and footwear industry (46,4%); EM, the electrical and optical equipment industry (44,5). The industry of other products made of non-metallic minerals- EI, the food, beverage and tobacco industry- EA, as well as the wood working industry (except furniture) also witness levels of over 30% of the FOR participation to investments.

Value added. The participation of the FOR companies to the value added creation in the manufacturing industry is low, of only 12.9%. The highest level of this participation, of 31.4% is registered in EG, the chemical and synthetic and artificial fibres industry and the next, of 21.8% in EA, the food, beverage and tobacco industry.

Profits. The FOR sector account for approximately one quarter (24.2%) of the profits value generated in the manufacturing industry. Their share is relatively high in the following subsections: EC, leather and footwear industry (48.2%); EM, electrical and optical equipment industry (40.8%); EG, chemical and synthetic and artificial fibres industry (38.5%), EA, food, beverage and tobacco industry (35.3%) and EB, textile industry and of textile fabrics (32.2%).

Number of employees. The wholly domestic-owned firms, STATE and PrivRO, account, each group for around 46% of the workforce in the manufacturing industry, while the foreign sector employs only 8%. The most significant shares of the FOR are to be found in EB, the textile industry and of textile fabrics, EC, leather and footwear industry and EG, the chemical and synthetic and artificial fibres industry, with levels situated between 13-15%.

II.2 The economic performance of FDI

The immediate theoretical background of FDI impact on the performance of recipient firms and, as a result of spillover effects, on that of wholly domestic-owned companies, as well are to be clearly found in the monopolistic advantage theory and in the theory of internalization. Both theories try to explain foreign direct investment and international production starting from the existence, at firm

level, of certain competitive advantages (monopolistic or oligopolistic advantages, including technological ones, the privileged access to financing or suppliers etc.) or internalization advantages that result from operating production assets within a common ownership and organizational structure. On the basis of such advantages, foreign firms are able more than to offset the difficulties of being present into a new foreign environment, facing the local competition and proving themselves to be profitable. The argument of the efficiency of foreign firms is even more visible as valid in the case of FDI motivated by the factor costs, as in such situations, foreign markets are the ones to confirm the competitiveness of the respective products.

This subchapter carries out an analysis of FOR sector performance in comparison with PrivRO and STATE sectors. We intend to continue the analysis of FDI impact on competitiveness at microeconomic level by deepening the above findings at NACE subsection level. We'll try to identify, on one hand, the industrial branches in which the FOR companies register the best performance and, on the other hand, the branches in which the respective firms have a significant contribution to certain economic indices. In this respect, we'll compare the performance of the FOR firms with the PrivRO and STATE sectors.

Labor productivity. Labor productivity is calculated as a ratio between value added and number of employees. In order to complete the above analysis, we'll resort to the labor productivity ratio (***LPR***), defined as an aggregate index at subsection level, calculated as a ratio between labor productivity by ownership and subsection labor productivity (see Def.1, Annex 1). LPR is maximal for FOR companies in all the subsections of the manufacturing industry, with one exception, insignificant from a statistical point of view (in the case of rubber and plastics manufacturing industry). The highest levels of the LPR are registered by FOR firms in the following industries: chemical and synthetic and artificial fibers industry (237%); cellulose and paper industry (193%); food, beverage and tobacco industry (192%); electrical and optical equipment industry (183%); industry of transport vehicles (151%), as well as the machine and equipment building industry (204%, but in this case the share of the FOR sector is low). For the manufacturing industry as a whole, LPR value for FOR companies is 164%, compared to 96% in the case of the STATE firms and 93% in the case of PrivRO firms.

Capital productivity. Capital productivity is calculated as the ratio between turnover and the value of fixed assets (machines, equipment and transport vehicles). *The capital productivity ratio* ***(KPR***, see Def.1, Annex 1) is defined as an aggregate index at subsection level by the ratio between capital productivity by ownership type and the capital productivity for the subsection as a whole. KPR points out the superiority of FOR companies only in 4 out of the 15 subsections of the manufacturing industry: in the leather and footwear industry (112%); in the cellulose and paper industry (161%); in the chemical and synthetic and artificial fibers industry (227%); in the machine and equipment building industry (216%). For the entire manufacturing industry, the KPR of FOR companies is 125%, higher than that of Romanian STATE companies (76%), but lower than that of PrivRO companies (135%).

Marginal productivity. The below conclusions refer to a Cobb-Douglas type model of the production function with four production factors (in a large sense), namely capital value, labour, value of materials and value of subcontracting: the production is defined by $Y = AK^{\alpha}L^{\beta}M^{\gamma}S^{\delta}$ (Boscaiu and others, 2000). (Under this model, the marginal productivity of capital is αY/K, the product of α which describes the contribution of capital K in the production function and Y/K, a measure of capital productivity; similar results hold for L, M, S.)

The marginal productivity of capital is significantly higher[1] for the private firms (PrivRO or FOR) against the STATE ones, the difference between FOR and PrivRO being insignificant. The marginal productivity of the labor is higher in the PrivRO sector, without, this time, significant differences between STATE and FOR. The marginal productivity of materials (materials are described by the total cost of raw materials, materials, energy and water) is maximum for STATE companies and minimum for the FOR companies, all differences between the three ownership types being significant. These differences may be related to two aspects: *export-import activities* (taking into account that the share of imported materials is significantly higher for FOR firms and for the companies with regular exports) and, on the other hand, *the share of value added in* turnover (which is minimal for FOR firms). A final aspect revealed by the regression analysis refers to *the marginal productivity of subcontracting, which is the highest for FOR companies*, followed by PrivRO and STATE companies. This fact is important from the point of view of the integration of the foreign affiliated activity in the Romanian economy, subcontracting being one of the ways in which the degree of integration may rise. It is true that the other main way consists in buying raw materials and materials from the Romanian suppliers; it was shown before that as far as this criterion is concerned, FOR firms are on the last place.

The analysis of the total productivity factor (TFP). We must have in mind that TFP covers all the causes that can alter productivity, others than those directly related to the production factors. TFP expresses the current level of technology as well as the efficiency of the organizational and managerial practices. In a previous study (Boscaiu and others, 2000, using a log-linear regression model) there has been found that the *total productivity factor is significantly higher for the private firms (PrivRO or FOR) in comparison with the STATE companies*. The difference between FOR and PrivRO is positive but not *significant.*

Exports. Another set of conclusions refers to the *frequency and intensity of export activities, which are maximal for FOR companies.* More precisely, 47% of the FOR firms register an over 75% share of exports revenues in turnover, against only 18% of the PrivRO firms and 4,2% of the STATE companies (in number terms). This conclusion contradicts, at least in the case of the Romanian manufacturing industry, the quite spread perception that the main motivation of the companies with foreign participation is the domestic market. FOR companies mainly work for export in the following industries: textiles, metallurgical industry, machines and equipment building, transport vehicles and furniture. On the other hand, there are industries FOR companies work almost exclusively for the domestic market: food, beverage and tobacco industry (income from exports represents only 1% of the turnover), rubber and plastics manufacturing (10%), electrical and optical equipment(14%), cellulose and paper industry (21% of the turnover). *At the aggregate level* of the manufacturing industry, the highest share of export income in the turnover of 29% is generated, nevertheless, by STATE firms, against 25% in the case of FOR firms and 23.5% in that of PrivRO firms. A coherent interpretation of this apparently paradoxical situation asks to point out some aspects previously mentioned: the small numerical share of STATE companies (approximately 25%), but the high share of their turnover (approximately 60% of the aggregate turnover of the manufacturing), the aggregate distribution of exports in the manufacturing industry (52% for STATE companies, 35% for PrivRO companies and 13% for FOR companies). This means that if almost half of the FOR firms account for the great majority of exports, the propensity for export of the other half is so low that, on the whole, the foreign sector performance is below, even if not much below, that of STATE companies (25% against 29%).

For all exporting companies, the percentages of the *export losing firms* (in the sense that revenues from exports are smaller than expenses for exports) are 20% for STATE and FOR against 10% for PrivRO. Moreover, 25% of the FOR firms with substantial exports (more exactly, which export at

[1] A "higher" value of the marginal productivity means a "higher" effect in the production function (a higher output) of an added unit of the considered resource.

least 75% of the production), are exports losers. In this case, too, the situation of PrivRO firms is relatively better: the percentage of the export losing firms is of approximately 10%.

Imports. The higher propensity for exports of FOR firms is accompanied by their higher inclination for imports as well. *The share of imported materials* (raw materials and materials, except energy and water) in the total expenditures of this kind of the company *is significantly higher for the FOR sector*. In the textile industry as well as in the leather and footwear industry – subsections with the highest levels of imported materials – the share of imported materials is 100% for more than half of the FOR companies. It should be also mentioned that the share of imported materials is higher for the firms with systematic exports, especially for those whose exports exceed 50% of the turnover.

Investments. The level of investments represents another aspect to be taken into account when judging the companies' performance. The investment intensity is expressed by the share of the investments in turnover. The investment ratio (see Def.1, Annex 1) will defined as an index aggregated at subsection level by the ratio between the investment intensity by ownership type and investment intensity of the subsection. At the level of the manufacturing industry, the investment ratio of FOR companies (163%) is more than double compared to that of STATE companies and over 50% higher that that of PrivRO companies (108%). The highest level of the ratio registered by the FOR companies is to be found in the industry of transport vehicles: 435% (against only 74% for the STATE companies and 110% for PrivRO). Other subsections in which the contribution to investments of the FOR companies is higher than that for the manufacturing industry as a whole are the industry of other products made of non-metallic minerals (315% against 17% in the case of STATE companies and 102 in the case of PrivRO companies); wood working industry, except furniture (223% against 14% and 89%, respectively); and finally, chemical and synthetic and artificial fibers industry (191% against 61% and 85%, respectively). The industry in which the propensity for investment of the FOR companies is minimum, being, at the same time, uncharacteristic for this group of firms, is the metal structures and metal products industry, except machines, equipment, installations. The level of the ratio is of 24%, compared to 18% in the case of the STATE firms and 156% in the case of PrivRO firms.

The share of value added in turnover. At aggregate level, the share of value added in turnover is the lowest for the FOR. The value added ratio (expressed by the respective share for each ownership type and the share at the manufacturing industry level, see Def.1, Annex 1) is of 91%, for the FOR firms, nevertheless quite close to that registered by the STATE Romanian firms, of 93%. Both levels indicate a performance below the medium level (100%). The sector that achieves the best level of this index is the PrivRO sector, with a value of 112%. The FOR companies exceed the 100% level in the following subsections: chemical and synthetic and artificial fibers industry (121%), the industry of transport vehicles (109%) and the industry of other products made of non-metallic minerals.

II.3 Conclusions concerning the size and performance of the FOR sector

The review of both the performance and share indices (see also Table A2 in the Annex 2) provides some important conclusions concerning the FOR sector. We mention them below.

1. At an aggregate level, the weight of value added in turnover is minimal in FOR sector. This finding confirms the opinion according to which the foreign direct investments in Romania are mainly located in low value added activities. At the same time, at firm level, the share of imported materials is the highest for the FOR companies. These are two of the explanations of the low macroeconomic impact of foreign capital on the restructuring processes in the Romanian economy.

2. In comparison with the domestic-controlled companies (STATE or PrivRO), *the FOR firms are superior from the following points of view: their labor and capital productivity and the frequency of*

*their export activities are higher (*even if for manufacturing as a whole, the share of exports in turnover is maximum for the STATE sector)*; their investment effort* (described as the ratio between investments value and turnover) *is much higher compared to STATE and PrivRO and their management (at least in what their capacity of using subcontracting is concerned) is superior.*

3. In Romania's case, there is obvious the existence of a number of superlatives of the FOR firms, compared to the companies controlled by the domestic capital. Nevertheless, on the other hand, the frequency of losses is higher for FOR than for PrivRO. As for the frequency of loss-making exports, this one is maximum for the FOR firms, also. Therefore, there is *a polarized structure of the foreign-controlled companies.* Thus, the profit-making firms are efficient and numerous enough to impose as a trend, at the aggregate level of the FOR sector, a number of superlatives concerning economic performance, and the unprofitable firms are numerous enough to significantly increase the frequency of losing firms.

4. The polarization of the PrivRO sector, if it exists, is much smaller than that of the FOR sector. For the PrivRO, the superlatives are fewer but the losses are smaller, too.

5. As it can be pointed out, the above conclusions doesn't offer enough indications for the evaluation of the FOR sector competitiveness in the manufacturing industry.

Chapter III
The analysis of the foreign capital competitiveness in manufacturing: aggregated analysis of profits and losses

We'll admit the definition of *competititveness as the capability of producing and selling profitable*. In this context, the profits analysis, the losses analysis and the profitability analysis –the subject of this chapter – are absolutely necessary for assessing competitiveness.

In this section, *"the profitable sector"* and *"the unprofitable sector"* denominate the set of all the firms that in 1998 made profits or, respectively, registered losses. The separation of the profitable firms from the unprofitable ones is explained by *the existence of major, systematic discrepancies between the two categories*, discrepancies that, in most cases, cannot be explained by favorable or unfavorable economic circumstances and can not considered to be random.

III.1 Frequency of profitable companies, profitability

In 1998, the frequency of profit-making firms was of approximately 68% for FOR compared to 76% for PrivRO (for STATE, the percentage was of only 45%). The FOR sector accounts for maximal values in 7 divisions, while PrivRO in 14 divisions. Columns 6-9 in Table A4, Annex 2 present the distribution of profitable firms at NACE divisions level. We enumerate below the divisions with statistically significant discrepancies, only (the number of firms in each analyzed category must be large enough).

Without insisting upon these values, we will mention the divisions that witness major discrepancies between the three ownership types (discrepancies will be marked with "!"). The divisions with an important variability of profits frequency are the following (the codification of the divisions is made explicit in Table A1, Annex 2): Div 15 (the percentages of profit-making firms are 36%!, 69% and 58% for STATE, PrivRO and FOR respectively), Div 17 (27%!, 65%, 59%), Div 18 (33%!, 86%, 76%), Div 19 (38%!, 72%, 79%), Div 24 (31%!, 74%, 75%), Div 27 (33%! For STATE and 71% for PrivRO), Div 28 (52%, 79%, 36%!), Div 36 (32%!, 70%, 71%).

We shell describe the profitability by the ratio between the difference "profits minus losses" and the turnover (percentage expression; see Table A5, Annex 2). In 1998, the profitability of the Romanian manufacturing industry was negative: -1.29%. This means that the manufacturing industry contributed to the decreasing and not to the increasing of the national wealth. The main contribution to this counter-performance was made by the STATE sector, with a profitability of -7.85%, while the private sector (domestic and foreign) had a positive contribution.

The NACE divisions in which the STATE firms made profits were only three: Div 16, Div 22 and Div 32. It is interesting to notice that in the three profitable divisions, the STATE sector had a better performance compared to that of the private capital, although exports registered low values. Thus, losses were small or absent (95-100% of the assets were in the profitable area) and the share of profits was significantly higher (see Table A5). Nevertheless, on the other hand, among the industries in which the STATE firms registered losses there are some considered to locate competitive advantages, such as the textile industry, the leather and footwear industry, the wood working industry and furniture.

At industrial branch level, the profitability of FOR and PrivRO is very different.
- The divisions in which the profitability of the FOR sector is much higher to that of the PrivRO sector are the following: Div19, the leather and footwear industry (the profitability of FOR companies is 16.38% against 1.03% for the PrivRO companies); Div20, the wood working industry (6.73%, against the negative -0.66%); Div21, the cellulose, paper and cardboard industry (11.35%, against -0,87); Div25, rubber and plastics manufacturing industry (9,31% against 0,89); Div31, the electrical and optical equipment industry (17,58%, against 7,60%).
- The divisions in which the profitability of the FOR sector is much lower than that of the PrivRO sectorur are the following: Div22, publishing houses, polygraphs and type copying (the profitability of the FOR firms is 3.23% against 8.16% for the PrivRO firms); Div24, the chemical and synthetic and artificial fibres industry (1.80% against 9.75%); Div 26, industry of other products made of non-metallic minerals (1.39% against de 11.26%); Div 28, the metal structures and metal products industry, except machines, equipment, installations (-53.40% again 5.24%); Div29, the machine and equipment building industry (-3.09% against de 4.24%); Div35, the industry of other transport vehicles (-35.73% against 13.10%); Div36, furniture and other non-classified activities (-3.79% against 2.54%).
- The divisions in which both FOR and PrivRO sectors register some of the highest profitabilities: Div18, ready-made clothes of textiles, furs and leather (12.81% and 14.60%, against de -7.91% for STAT).

III.2 The location and size of the profitable sector

The dimension of the profitable sector can be described by three indices. The first one, already used in §III.1, is *the frequency of profitable firms*. This one presents the disadvantage of equally treating every two firms, irrespective of their dimensions.

The second index is *the share of the profitable capital (**SPA**)*, defined by the share of the value of fixed assets of the profitable sector, in the total of fixed assets value (the share will be expressed as a percent). A third index will be used, as well, *the share of the profitable turnover **(SPT)***-similarly defined, with reference to the share of the turnover. More precisely, the definitions of the indices are the following:

$$\mathbf{SPA} = 100 \times FA_{prof} / FA_{tot} \qquad \mathbf{SPT} = 100 \times T_{prof} / T_{tot}$$

where:

FA= aggregate capital, expressed by the aggregate value of fixed assets in the reference set (the manufacturing industry or a NACE division);

T= aggregate turnover in the reference set.

'prof ' and 'tot ' indicate the aggregation sets: the profitable firms of the considered set and all the firms of the considered set, respectively.

At the level of manufacturing, the share of the profitable capital is SPA=49%. In this way, the share of the "captive" assets in the unprofitable sector is of 51%. That is – in more vague but suggestive terms – half of the Romanian manufacturing was losing in 1998. The turnover of the profitable sector was of approximately 2/3 of the aggregate turnover of manufacturing.

The decreasing order of the share of the profitable sector within each ownership type is the following (see Table A3 in Annex 2): PrivRO (70% of the capital and 82% of the turnover are concentrated in the profitable sector), FOR (62% of the capital and 78% of the turnover located in the profitable sector) and STATE (with only 36% of the capital and 44% of the turnover to be found in the profitable sector).

Irrespective of the ownership type, the profitable sector accounts for large shares in Div16 (accounting for 100% of the capital), Div32 (93% of the capital), Div18 and Div22 (85% of the capital), Div31 and Div26 (with 78% and 74% respectively of the capital).

At division level, the share of the profitable sector generally presents a higher variability with regard to the ownership type. The divisions with a relative homogeneous behavior according to this criterion are just a few: Div16, Div22, and Div32, exactly those with the lowest share of the unprofitable sector.

The shares of the profitable sectors are described in the following table.

Table III.1 The distribution of the profit-making and loss-making sectors, depending on prevailing ownership and NACE division [0)]

Prevailing ownership	**Divisions locating a high share of *loss-making* sector** [1)]	**Polarized divisions** [1) 2)]	**Divisions locating a high share of *profit-making* sector** [1)]
STATE	Div17, Div18, Div23, Div24, Div25, Div27, Div33 (>64%)	Div15, Div19, Div20, Div26, Div28, Div29, Div31, Div34, Div35, Div36	Div16, Div22, Div32 (>95%); Div21 (61%)
PrivRO	Div21 (79%)	Div17, Div19, Div20, Div24, Div25, Div27, Div36	Div18, Div23, Div26, Div29, Div31, Div32, Div33, Div35 (>80%); Div22 (78%); Div34(74%); Div28(68%); Div37(62%)
FOR	Div27, Div28 (>75%); Div29 (74%)	Div25	Div16, Div18, Div19, Div21, Div32, Div34, Div36, Div37 (>80%); Div15, Div26 (73%); Div22, Div24, Div31(65%); Div17, Div20(61%)
The manu-facturing industry, as a whole	Div23, Div27(85%)	Div17, Div19, Div20, Div21, Div24, Div25, Div28, Div29, Div33, Div34, Div35, Div36, Div37	Div16, Div18, Div22, Div32, (>85%); Div26(78%), Div31(74%); Div15(64%)

[0)] The table summarizes information for the manufacturing industry 1998, from the Table A3(see the columns 6-9), Annex 2.

[1)] Classification criterion is the capital share of the division, defined by the percent of the fixed assets value of profitable firms, computed in the total value of the fixed assets. All divisions were considered, irrespective theirs (small) number of firms.
[2)] A division is defined as "polarized" if profit-making and loss-making sectors have near shares (in the interval 40-60%).

III.3 The profit, the losses and the average size of the capital

It should be noticed that the analysis of the frequency of profitable firms from §III.1 and the analysis summarized in Table III.1 are not equivalent: the conceptual difference consists in the fact that the first refers to the *firm* level, while the second to the *aggregate* level. Therefore, the frequency of the profitable firms and the share of the profitable capital are only partially consistent, although they register a high empirical correlation coefficient at division level: 0.84. Moreover, taking into account the two variables, *the capital rate*, **RK**, will be defined (see Table A4).

The index RK will be computed for each division (and for the manufacturing industry as a whole, as well) and for each of the three ownership types, STATE, PrivRO and FOR (but also irrespective of the ownership type) as it follows:

$$RK = (FA_{loss}/FA_{prof})/(NR_{loss}/NR_{prof}) = (FA_{loss}/NR_{loss})/(FA_{prof}/NR_{prof})$$

where:

FA = aggregate capital, expressed by the aggregate value of fixed assets;

NR = number of firms

'prof' and 'loss' indicate the aggregation set: profitable firms, unprofitable firms, respectively.

In this context, FA/NR is the mean value of the capital and it describes in fact the average size of the firm, while RK compares the average sizes, more exactly it describes the ratio between the mean calculated for the loss-making firms and the mean for the profit-making firms.

If the rate value is significantly higher than one, RK>1, then the average size of the loss-making firms is higher than that of the profit-making firms. (for example, RK=2 means that, in a specified set of firms, the mean capital of the loss-making firms is twice as big as the mean value the profit-making firms). Otherwise, if RK<1, then the average size of the loss-making firm is lower than that of the profit-making firms. A value of RK that doesn't significantly differ from 1 (is approximately 1) should be interpreted as it follows: the hypothesis of equality of the mean capital of the profitable and unprofitable firms is accepted. The term "significantly" should be understood under the meaning of the theory of testing the statistical hypothesis. We draw the attention that in the absence of a correctly substantiated statistical analysis, the values of RK should be considered in the following empiric, "weaker" manner: if RK<1, then the bigger firms have a greater probability (but we don't know how much greater) of being profitable and, opposite, if RK>1 then it is "more probable" that the small firms should be profitable.

At the manufacturing industry level (see the first line of Table A4), it can be noticed that for all the three ownership types, the *relatively small firms present a greater probability to be profitable*. This is also the case for some divisions: Div25, Div27, Div28, Div34 and Div35. Opposite, in the divisions Div15, Div18 and Div32 the bigger firms have a higher probability to be profitable and this is true for all the three ownership-types.

The above suggests us the following conjecture: "the RK values can offer valuable information to underlie the restructuring policies". (Example: an increment of the size of the small firms in Div15, Div18 and Div32, could increase the probability to be profitable.) But we must stress that this

conjecture will remain an hypothesis only, until a more stringent analysis will be carried on; it is obvious that the influx of capital cannot automatically make the firm profitable.

We present below a synoptic table of the divisions in which the value of RK is significantly different from 1. We mention the fact that some "very high" values of RK –see Table A4– couldn't be taken into account because they were not statistically significant, mainly due to the small number of firms.

Table III.2 Profitability description [0)], depending on the capital ratio RK [1)], prevailing ownership and NACE division

Prevailing ownership	Divisions with RK>1 [2)]	Divisions with RK<1 [3)]
STATE	Div26, Div27, Div34	Div15
PrivRO	Div17, Div19, Div20, Div21, Div24, Div28, Div34, Div36	Div15, Div18, Div32
FOR	Div28	Div15, Div18
The manufacturing industry, as a whole	Div17, Div19, Div20, Div24, Div27, Div28, Div29, Div34, Div35, Div36	Div15, Div18, Div22, Div32

[0)] The table summarizes information for the manufacturing industry 1998, from Table A4, Annex 2.
[1)] See above the definition of the index RK.
[2)] If RK>1 then the mean capital of the loss-making firms is significantly higher than the mean capital of profit-making firms.
[3)] If RK<1 then the mean capital of the loss-making firms is significantly less than the mean capital of profit-making firms.

III.4 The link between profits, losses and the capital productivity

Similar to defining the capital rate, we define **RKPR**, *the capital productivity rate* as the ratio between the productivity of the profitable capital and the productivity of the unprofitable capital. This index can be calculated as functions of SPT and SPA (see Table A3). RKPR is defined as it follows:

$$RKPR = (T_{loss}/T_{prof})/(FA_{loss}/FA_{prof}) = (T_{loss}/FA_{loss})/(T_{prof}/FA_{prof})$$

where:

FA = aggregate capital, defined by the aggregate value of the fixed assets;

T = aggregate turnover;

'prof' and 'loss' indicate the set for which the aggregation is made: profitable firms, unprofitable firms, respectively.

T/FA is the capital productivity.

All the above mentioned considerations for RK are also valid for RKPR. The examination of RKPR values allows us to make a few remarks.

1. RKPR values are generally less than one, meaning that the capital productivity is higher for the profitable companies. This is a predictable result.

2. There are also six exceptions more difficult to interpret (two for each ownership type): situations in which the capital productivity is not higher for the profitable firms. The case of Div18 should be mentioned, because is statistically significant: RKPR is 1.08 for FOR and 0.47 for domestic companies. The interpretation of these values is the following: the profitability and the capital productivity are independent variables (!) for the FOR companies (CPR = 1.08 doesn't significantly differ from 1), while for the domestic companies (STATE or PrivRO), they are dependent: the profitability is accompanied by a higher capital productivity. The other five exceptions are not

statistically significant because of the small number of firms in the respective sectors. They should be interpreted on a case-by-case basis, which is not our objective.
3. Generally, the largest difference in capital productivity between the profitable and unprofitable firms appears in the FOR sector. Thus, at the level of the manufacturing industry, RKPR has the value of 0.46 for FOR, 0.51 for PrivRO and 0.72 for STATE. Also, the FOR sector locates the lowest values of RKPR at division level: 0,19 in Div 17; 0,08 in Div 28. These values indicate a high sub-utilization of the capital in the unprofitable area of the foreign sector. (Example: for Div28, the metal structures, metal products industry, except machines, equipment, installations, the capital aggregate productivity in the losing sector represents only 8% of the capital aggregate productivity in the profitable sector!)

III.5 The share of the profit and losses in the turnover

The analysis of profitability in §III.1 could be detailed, obtaining interesting general conclusions, but not information concerning *the level of the profit in the profitable firms and the level of losses in the unprofitable ones.* That's why we carried on a separate analysis for the profitable and unprofitable sectors (see columns 2-9 in Table A5).

This approach starts from the observation that a discussion about competitiveness could be relevant only if, prior to it, the structurally noncompetitive firms (frequent enough) would be isolated. By *structurally noncompetitive firms* we understand one of the following two categories: 1) firms whose strategic mission is not the production and a profits transparently mention in the accountancy; 2) firms with negative or low profitability (as against the division they belong to), whose objective may be to make profits, but which can be viable on medium or long term only after a profound restructuring. It is, nevertheless, obvious that identifying structurally noncompetitive firm is a complex and also debatable problem which goes beyond the framework and possibilities of this study. The conjecture that we agree upon is the following: " the largest part of the structurally noncompetitive firms is to be found among the unprofitable firms". As a consequence, the analysis of competitiveness will be focused mainly on the analysis of the profitable firms sector. As a consequence, we shell focus the competitiveness analysis, mainly on the analysis of the profit-making firms. Generally, this approach is not correct: the losses are not abnormal, they belong to the "rule of the game". The abnormal fact is the high frequency of the losses in the firms with at least 50 employees in Romanian '98 manufacturing: 33%. The conclusion is clear: as for the unprofitable firms sector, it cannot be ignored from the analysis due to its significant weight.

Table III3. The appraisal of the profits and losses [0), 1)]
by prevailing ownership and NACE division

Prevailing ownership (profit [2)] / losses [3)])	*Loss-making sector:*		*Profit-making sector:*	
	High losses divisions (more than 25% from turnover)	**Least losses divisions** (less than 10% from turnover)	**Least profit divisions**	**High profit divisions** (more than 10% from turnover)
STATE (4,56% / 17,66%)	Div15, Div17, Div20, Div21, Div31, Div33, Div34	Div27, Div32, Div37	[4)] Div18, Div20, Div21, Div23, Div24, Div25, Div34	Div22, Div32
PrivRO (9,83% / 17,12%)	Div18, Div27, Div29, Div32	Div21, Div33, Div35, Div37	Div23(3,39% [2)]), Div25(5,96%), Div27(5,32%)	Div18, Div19, Div21, Div22, Div24, Div26, Div28, Div35, Div36
FOR (9,98% / 22,78%)	Div17, Div20, Div24, Div28, Div32, Div35, Div36	Div18, Div25, Div26, Div31	Div16(2,03%), Div26(3,75%), Div34(3,30%), Div36(5,58%)	Div18, Div19, Div20, Div21, Div24, Div25, Div27, Div28, Div31
The manu-facturing industry, as a whole (8,17% / 18,03%)	Div15, Div17, Div28, Div32, Div34	Div27, Div37	Div16(4,96%), Div23(2,73%), Div27(3,96%), Div29(5,72%), Div34(3,03%)	Div18, Div19, Div22, Div26, Div28, Div31

[0)] The table summarizes information for the manufacturing industry 1998, from the Table A5, Annex 2 (see the columns 2-9).
[1)] The firms that report in the year 1998 profit, respectively losses were separately considered.
[2)] 100% = the aggregate turnover of the profit-making firms in the specified ownership category.
[3)] 100% = the aggregate turnover of the loss-making firms with the specified ownership category.
[4)] less than 3% from the aggregate turnover.

Although Table III.3 offers the opportunity for many comments, we just wish to draw the attention to three divisions with very contradictory results: some of the highest losses in the unprofitable sector and some of the highest profits in the profitable sector. These divisions are the following: Div18 for the PrivRO sector; Div20, Div24 for the FOR sector; Div28 for the FOR sector but for the division as a whole, as well.

III.6 Profits, losses and exports in the manufacturing industry

In §II.2 two conclusions were formulated: 1) at firm level, the frequency and intensity of export activities are maximum for the FOR firms; 2) at aggregate level, the maximum share of exports is to be found in the STATE sector. Table A6 in Annex 2 makes obvious the second conclusions but, moreover, allows to formulate a few useful observations concerning the analysis of the competitiveness or lack of competitiveness of the Romanian manufacturing industry. At the level of the manufacturing industry as a whole, the share of exports in the turnover is significantly higher for the firms with losses (32.25% in the unprofitable sector against 22.89% in the profitable sector). This situation is due to the STATE and FOR sectors where the share of exports is higher for the unprofitable firms (see the first line of Table A6). Nevertheless it must be mentioned that for PrivRO the situation is different: the share of exports is about 23%, both in profitable and

unprofitable sector. Interesting for the profitable sector is the share of aggregate exports in the aggregate turnover is the same, irrespective the ownership type.

The below synoptic table summarizes information from the Table A6.

Table III4. The appraisal of the exports [0)], depending on profit, prevailing ownership and NACE division

Prevailing ownership / Exports share in turnover	***Loss-making sector:*** **High exports share divisions** (more than 40% from turnover)	***Profit-making sector:*** **High exports share divisions** (more than 40% from turnover)
STATE/ 29%	Div19(49%), Div29(41%), Div35(54%), Div36(48%)	Div18(76%); Div24, Div27, Div35, Div36(40%–50%)
PrivRO/ 23,5%	Div18(64%); Div19, Div36(50%-60%); Div17, Div20, Div26, Div28(40%-50%)	Div18(76%), Div19(52%), Div20(51%), Div36(63%)
FOR/ 25%	Div17, Div18, Div19, Div35, Div36(>88%); Div20(61%), Div27(51%), Div28(44%), Div29(66%)	Div17(57%), Div18(84%), Div27(94%), Div29(55%), Div36(43%)
Manufacturing industry, as a whole/ 26%	Div18(78%); Div19, Div35, Div36(50%-60%); Div17, Div20, Div29(40%-50%)	Div18(78%), Div36(60%); Div17, Div19, Div20, Div27(40%-50%)

[0)] The table summarizes information for the manufacturing industry, year 1998, from the Table A6, Annex 2. All divisions were considered, irrespective theirs small number of firms.

A comparison of the profitable and unprofitable sectors (by taking into account the share of exports in the turnover) leads to some interesting conclusions for FOR (see Table A6):
a) At division level, with five exceptions, statistically non-significant, the share of exports is higher in the unprofitable sector than in the profitable one.
b) In the unprofitable sector, the exports register important shares (over 88%) in Div17, Div18, Div19, Div35 and Div36.
c) In the profitable sector, the exports have very large shares exclusively in Div18 (84.21%) and Div27 (94.29%, but in this case there is only one firm).

In conclusion, a characteristic of the unprofitable sector of FOR is a higher level of exports. This is true at the aggregate level of some divisions, namely some divisions which are representative for Romanian exports, but also at the aggregate level of the manufacturing industry, as a whole.

Through an attentive analysis of Table A6, we'll try to evaluate what is behind this conclusion. Five remarks will be on interest.
r1. For *the unprofitable part of the FOR sector,* the largest share of exports (over 50% of the aggregate turnover of the division) is located in eight divisions (see column 5, Table A6). These divisions are the following: Div 17 (88.60%), Div 18 (93.38%), Div 19 (92.78%), Div 20 (61.39%), Div 27 (50.66%), Div 29 (66.09%), Div 35 (94.66), Div 36 (89,12%).
r2. For *all companies (profitable or not, irrespective of the ownership type)* it can be noticed that the divisions mentioned at **r1** are exactly the ones with the largest aggregate shares of the exports. The values are the following: (see column 10, Table A6): Div 17 (40.78%), Div 18 (77.65%), Div

19 (48.77%), Div 20 (44.05%), Div 27 (39.39%), Div 29 (31.34%), Div 35 (41.88%), Div 36 (58.36%).
r3. For *the profitable sector (irrespective of the ownership type*), the same divisions mentioned at **r1** register the largest aggregate shares of exports, with one exception –Div 29 with a share above the average but relatively lower. The values are the following: Div 17 (40.97%), Div 18 (77.60%), Div 19 (45.74%), Div 20 (43.90%), Div 27 (43.82%), Div 29 (26.56%), Div 35 (34.51%), Div 36 (59.86%).
r4. The aggregate values of approximately 50% or more of the exports share in the aggregate turnover are located as it follows:
3 for the *profitable sector of the STATE* – Div 18(75,99%), Div 27(46,53%), Div 36(49,98%);
4 for the *profitable sector of PrivRO* – Div 18(74,42%), Div 19(52,45%), Div 20(50,57%), Div 36(63,28%);
4 for the *profitable sector of FOR*– Div 17(57,18%), Div 18(84,21%), Div 27(94,29%), Div 29(54,68%);
3 for the *unprofitable sector of STATE* – Div 19(48,87%), Div 35(54,17%), Div 36(47,73%);
5 for the *unprofitable sector of PrivRO* – Div 18(63,93%), Div 19(50,95%), Div 26(46,48%), Div 28(46,83%), Div 36(56,60%);
8 for the *unprofitable sector of FOR* – the divisions above mentioned at **r1**.
It can be noticed that, from this point of view, *the unprofitable sector of FOR register the best performance in terms of exports*: the most numerous divisions and the highest values (5 from these values are over 88%).
r5. The divisions mentioned at **r1** are among the industries that have traditionally located comparative advantages.

The fact that (according to **r1** and **r3**) the largest shares of exports are located in the same divisions both for unprofitable FOR sector, but also for all profitable firms, irrespective the ownership type, shows that not the international markets are responsible for the losses. Moreover, taking into account **r5**, the domestic conditions required by the production process are generally met. **r4** singles out the situation of the unprofitable sector of FOR. In this context, the inefficiency of a large part of the FOR firms seems to be related to causes mainly related to the characteristics of the firm. Two possible explanations of this situation could be: 1) the management and marketing activities are poor; 2) obtaining profit is not the main motivation of the export activities (the motivation should be, for instance, related to the strategies of the parent-companies, including also the practicing of transfer prices).

The possible formulation "losses are associated with large shares of exports", formulation that might be suggested by the examination of the first line of Table A6 is misleading. The correct result is the following:

R1. A characteristic of the unprofitable sector of FOR and STATE (but not PrivRO) is the high share of aggregated exports. This is true at the aggregate level of the manufacturing industry but also at the aggregate level of some divisions, namely some divisions which are representative for Romanian exports.

Moreover, the table below is pointing out a rather different aspect.

Table III5. The firms frequency [0)], by profits/losses, ownership type and exports level

100%= all the firms of the category (of the line)

Prevailing ownership, Profits/Losses	Exports level (% from the turnover)				
	[0, 5)	[5, 25)	[25, 50)	[50, 75)	[75, 100]
STATE, Profit	55.7 [1)]	16.4	13.9	9	5
STATE, Losses	59.6	15.7	12.4	9.4	2.8
PrivRO, Profit	53.8	10.9	7.2	8	20.1
PrivRO, Losses	61.9	9.3	8.3	7.3	13.2
FOR, Profit	31.8	6.1	3.8	6.9	51.3
FOR, Losses	39.3	4.9	6.6	8.2	41

[0)] The table summarizes information for the manufacturing industry, firms having at least 50 employees, year 1998.

[1)] Meaning, example: 55.7% from profit-making STATE firms have the share of the exports in turnover between 0% and 5%.

Comment

a) The Table III.5 reveals the statement **R2**, which follows):

R2. Significant differences appear between the frequencies of loss-making and profit-making firms, for two levels of exports: un-exporters and high exporters. In fact, the frequency and the intensity of export activities are higher for profit-making firms comparing to loss-making firms, for each of the three ownership types. Moreover, a high level of exports is associated with a smaller frequency of losses, irrespective of the ownership types (for the last statement, see Boscaiu and other, 2000, Table 20, Annex).

b) The statements **R1** and **R2** seem to be contradictory, but they are not. Their explanation can be found in the non-homogeneity of the turnover of loss-making and profit-making firms, both for STATE and FOR sector. (In STATE sector, the highest weight of turnover is located in the category of loss-making firms exporting 25%-50% and the firms of this category have the highest average turnover. As it concerns FOR sector, the highest weight of turnover is located in the category of profit-making firms exporting not more than 5%. The turnover in this category also has high average, comparing with loss-making firms of the same exports level.)

Conclusions concerning the dependence between exports, profits and losses

1) *The frequency of the exporting firms is higher for profit-making firms, comparing with loss-making firms, irrespective the ownership type.*
2) *The exports decrease the loss frequency, irrespective the ownership type.*
3) *For the FOR and STATE firms (but not for PrivRO) the aggregated value of exports is higher in the loss-making sector, comparing with profit-making sector.*
4) *The unprofitable FOR firms register the highest exports in the divisions generating the highest exports of the manufacturing. Moreover, the profitable FOR sector exports massively, as well, in the same divisions. This means that not the export activities as such are associated with losses. The causes of losses must be looked for in the managerial characteristics of firms.*

III.7 Investments, profits and losses in manufacturing

Table A7 shows a few interesting aspects concerning the *investment intensity*, intensity described by the ratio between *the value of investments and the value of the turnover*, ratio computed for various aggregation levels. The first line of the table concerns manufacturing as a whole. At this level, two conclusions can be drawn.

1) The decreasing order of the investment intensity is the following: FOR, PrivRO, STATE; this order is observed for the profitable sector (the set of profit-making firms) and the unprofitable sector (loss-making firms) as well.
2) The investment intensity registers a higher value in the profitable sector (11,45% against 8,41% in the unprofitable sector). The above statement is misleading, however: it is explained exclusively by the *high share of investments in the profitable sector of FOR (30,18%)*.

The two above conclusions are not always true at division level, as well. A special case can be mentioned: the investment intensity of the unprofitable firms is significantly higher than that of the profitable firms. The divisions where we found such situations are the following: Div17, Div18, Div20, Div24 (for each of the three ownership types), and Div33, Div36 (for PrivRO and FOR). It should be noticed the high level of exports in 5 of these divisions (the exception is Div33). It seems that the main source of losses in these divisions is not the lack of performance. Even if identifying the causes of losses doesn't make the subject of this paper, we mention a few possible ones: the long-term development policies of the companies, the practice of transfer prices, various accounting manipulations with fiscal motivations, etc.

III.8 The share of materials, the profits and losses

Table A8 in Annex 2 shows a few aspects related to the *share of materials in the turnover* (materials: the value of the raw materials and consumption materials –including power, water and other material expenses). The first line of the table refers to manufacturing, as a whole. At this level, beyond the natural remark that the share of materials mainly depends –from technological reasons– on the division, three conclusions can be drawn.
1) The increasing order of the share of the materials in the turnover is the following: FOR, PrivRO, STATE; this order is observed both in the profitable and unprofitable sector.
2) The share of the materials register higher values for the unprofitable sector, for each of the three types of ownership: (72%, 64% and 55% in the unprofitable sectors of STATE, PrivRO şi FOR, against 60%, 52% and 47% respectively, in the profitable sector).
3) Generally, the first two conclusions also hold at division level, as well, with two exceptions.

Chapter IV
The comparative analysis of the performance by ownership type in the manufacturing industry: allocation diversity ratios and aggregate ratios

IV.1 The allocation diversity ratios, AD and the aggregate ratios, RA

The comparative analysis is carried on for the manufacturing industry as a whole, making use of two types of indices: *aggregate ratio*, **RA** (Boscaiu and others, 2000) and *allocation diversity ratio,* ***AD*** (Rojec, 2000). Details concerning the definitions of these ratios can be found in Annex A1. The indices for which **RA** and **AD** are calculated are to be found in Rojec's study (2000).

*The aggregate ratio of the variables **X** and **Y*** for the ownership type **OT** is defined as it follows (the use of the brackets could be avoided but we intend to confer an intuitive character to the definition):

$$RA_{TP}[X:Y] = (X_{OT}/X)/(Y_{OT}/Y) = (X_{OT}/Y_{OT}) / (X/Y),$$

where X (respectively X_{OT}) is the sum of the values of the variable X for all the companies in the manufacturing industry (respectively for the companies of the **OT** category); Y and Y_{OT} are similarly defined for Y variable.

The allocation diversity ratio attached to the **X/Y** ratio, defined for the ownership type **OT** is the following (also, the Def.2, Annex 1 can be seen)**:**

$$AD_{OT}\ [X : Y] = \sum_{i=1}^{n} \frac{p_i}{P} \times \frac{a_i}{A}$$

where: i = individual manufacturing industry according to the NACE classification, i = 1,..,23;

OT = the selected ownership type;

$p_i = x_i / y_i$ is the value of the index **X/Y** in the division "i" for the ownership type OT;

$P = X/Y$ is the value of the index **X/Y** for the manufacturing industry as a whole;

x_i (y_i, respectively) = is the sum of the values of variable **X** (**Y** respectively) in the division "i", for the ownership type OT;

X (Y, respectively) = the sum of the values of variable ***X*** (***Y,*** respectively) for the manufacturing industry as a whole;

a_i = total value of assets in division "i" for OT;

A = total value of assets in the manufacturing industry for OT

Unlike RA, which is an *actual index*, AD is a *virtual index*. It describes the potential of a certain category of companies in relation to a weight variable. In our case the weight variable is the *value of fixed assets*. This gives the AD analysis the character of a *resources allocation efficiency analysis*. In this situation, a level of over 100% of AD reflects the tendency of the respective category of companies to locate their assets in activities in which the index X/Y register high values. For the Romanian manufacturing industry, the virtual character of AD is emphasized, given the different degree of sub-utilization of the fixed assets. The decreasing order of degree of utilization of the fixed assets was in 1998: FOR, PrivRO, STATE (Boscaiu and others, 2000).

We stress the fact that the interpretation of the AD values, computed for each ownership type must be related to the AD values computed at the aggregate level of manufacturing (as against RA, the value of AD for manufacturing as a whole is not 100%).

If variable Y from the definition of the index P=X/Y is the value of the fixed assets then AD and RA ratios are identical.

We present below a table with five performance/operation indices, calculated for four ownership types: besides the already mentioned types (STATE, PrivRO and FOR), we also define the **ROM** sector of the companies predominantly domestic-owned (STATE or PrivRO). There are two reasons for this suplimentary definition: on one hand, in order to compare the conclusions for the binary structure ROM/FOR with the conclusions for the ternary structure STATE/PrivRO/FOR and, on the other hand (although it is not the aim of the present paper), in order to ensure the comparability of the results of this subchapter with those of similar analysis for the Czech Republic, Hungary, Slovakia and Slovenia (Rojec, 2000).

Table IV.1 Aggregate ratios and allocation diversity ratios in the manufacturing industry, by ownership type [0)]

Index	Aggregate ratio [1)] RA (%)				Allocation diversity ratio [1)] AD (%)				
	STA-TE	Priv RO	ROM	FOR	STA-TE	Priv RO	ROM	FOR	Total [2)]
Profit / equity [3)]	*28*	**232**	86	218	*29*	243	93	**295**	110
Losses / equity [3)]	110	*70*	99	**113**	108	*74*	98	**119**	100
Labor productivity [4)]	*92*	98	95	**146**	*104*	114	110	**215**	118
Exports /Turnover	**111**	*89*	101	94	114	*97*	106	**115**	107
Fixed assets / Employees number	**133**	*64*	99	109	164	*82*	132	**213**	133

[0)] The table summarizes information for the manufacturing industry, firms having at least 50 employees, year 1998.
[1)] 100%= *actual* value of the ratio for manufacturing industry and specified ownership type;
[2)] The AD value is a *virtual one*, depending on the weight variable (here, the fixed assets value). An AD ratio for a specified ownership type must be compared to the "Total" value, which is referring to the manufacturing industry, as a whole.
[3)] These indices are referring to the two complementary firms sets: profitable and unprofitable, respectively.
[4)] Productivity = value added/number of employees.

The analysis of the above table allows us some general comments.
a) The minimum values of the indices (in the table they are written *italic*) are identically positioned by the criteria RA and AD;
b) As far as the maximum values are concerned (in the table they are written **bold**), the consistency of RA and AD indications is relative;
c) The values of RA and AD point out major discrepancies between the STATE sector and the PrivRO sector. Under these conditions, the simple comparison between the FOR companies and the ROM (sector which brings together the STATE and PrivRO) is not enough.

IV.2 Conclusions

AD reveals that the FOR companies *tend* (remind that AD is a virtual index) to locate in highly performance industries more than the STATE or PrivRO firms. In other words, for all considered indices, the maximum values of AD are to be found in the FOR sector. Nevertheless, we would point out that the index concerning the share of losses is also the highest in the case of FOR, with a negative connotation this time (remind that the index refers only to the companies with losses). From the point of view of the *actua*l situation described by RA, things look differently: the highest values of the indices are distributed between the STATE, PrivRO and FOR companies.

The analysis of profits and losses was approached separately. Unlike Rojec, we haven't analyzed the profitability because of negative and close to zero values of the difference between profits minus losses, values which would have made unstable the estimates type RA and AD (values computed taking into account the difference "profits minus losses"). On the other hand, as it was mentioned before, the "mixing" of profits with losses means the wasting of information and the decrease the accuracy of the analysis.

The share of profits in the equity capital is the lowest in the STATE sector: 7-8 times lower than in the PrivRO or FOR sectors. The share of losses in the equity capital is the lowest for the PrivRO firms: 60-70% of the values registered in the FOR or STATE sectors; the shares of losses in the

equity capital don't differ significantly for the FOR and STATE sectors. We can mention the fact that as far as profits and losses are concerned the most well-balanced situation is that of the PrivRO sector (it register minimum values of RA and DA ratios for losses and maximum and close to maximum values of RA and DA, respectively for profits).

The analysis of labor productivity shows significantly higher values of RA and AD in the FOR sector, as compared to STATE and PrivRO.

Examining *the share of exports in turnover*, RA and AD, as well, situates PrivRO companies on the last place. RA situates the STATE sector on the top, while AD doesn't identify a difference between FOR and STATE companies.

Finally, as far as the capital endowment described by *the value of fixed assets per employee* is concerned, RA and AD, as well, situates the PrivRO companies again on the last place. RA places the STATE sector on the top, while AD places on the top the FOR sector.

Chapter V
Conclusions

We are not going to reiterate all the conclusions previously formulated in the study. Practically, every subchapter of Chapters II and III has its own notable conclusions. Generally, in the present section, we concentrate on two topics: 1) emphasizing some methodological aspects – the majority of which has been discussed before; 2) some general conclusions which are relevant for the analysis of competitiveness.

In addition, we suggest an evaluation of the Romanian manufacturing industry competitiveness at division level. This analysis was not carried on in the previous chapters but it is based on the indices presented in Tables A3, A4, A5, and A6 in Annex 2. These tables were used in Chapter III. Finally, some general considerations and suggestions for the continuation of the research will conclude our paper.

V. 1 Methodological comments

It should be stressed that *not the exhaustive evaluation of the Romanian manufacturing industry competitiveness* was the objective of this analysis. The objective of our analysis was *the evaluation of the FOR sector competitiveness*, that is of the prevailing foreign-owned companies competitiveness. Nevertheless, taking into account the major discrepancies within the domestic capital sector, we chose to separately evaluate the FOR sector competitiveness in comparison with the STATE sector, of the prevailing foreign-owned firms and with the PrivRO sector, of the prevailing Romanian capital private firms.

Our approach was not the usual one to be followed in the studies concerning the quantitative analysis of competitiveness (to enter the general problems of the competitiveness analysis, the reader may see, for example, two interesting articles, accompanied by interesting references: Maria Teresa S. Duenas-Caparas, (1999); Cockburn and others (1997)).

The methodology of our analysis is based on the minimal understanding of *"competitiveness": the capacity of producing and selling profitably, both on the domestic and international market.* Given the very large share of losses in the manufacturing industry (approximately one third of the firms, which account for approximately half of the fixed assets), we chose to define and analyze individually two sectors: *the profitable sector* and *the unprofitable sector*. "Splitting" the set of the manufacturing firms into two sectors is an artificial but necessary task. The reason for it consists in

the existence of major systematic discrepancies between the two categories, discrepancies that, in most cases, cannot be exclusively explained by random causes, related to economic circumstances or to the long-term development policies.

The present analysis is static (our data refers exclusively to 1998). That's why we did not use any price index. Otherwise, given the fact that the central objective of the analysis was the comparison of parts (defined by the ownership type) of the same entities, involving price indices would have been unnecessary.

The first question we asked ourselves when we projected this analysis was the following: is a data-base for the end of 1998 able to offer valid conclusions for 2001? Generally, the answer should be affirmative but it requires to be discussed. An industrial branch competitiveness/non-competitiveness couldn't qualitatively change in the period 1999-2000, a period rather characterized by stagnation. We must, nevertheless, stress that the privatization process at the level of some NACE divisions –a delayed process in 1998– has developed at a more or less constant pace in 1999-2000. This means that, comparing to 1998, some firms changed their ownership form, passing from one category into another. Generally, the weight of the STATE sector diminished in favor of the private sector (Romanian or foreign). On a short term, the influence of this transfer of ownership on the competitiveness of some NACE divisions cannot be too important, but the weights of the three sectors defined according to the prevailing ownership type could change significantly. As a conclusion, the situation of the divisions with large weight of private sector (FOR or PrivRO) didn't suffer important modifications in 1999-2000. However, is possible that some divisions outside the Table V.1 (from below) "to have entered" into the Table V.1 after 1998, a fact that our study couldn't reveal.

V.2. General conclusions

G1. The most important contributions and shares of the FOR sector are to be found in the subsections presented in the table below.

Table V.1 The NACE subsections of the manufacturing industry which locate the best contributions/weights of the prevailing foreign-owned companies, year 1998 [0),1)]

(percentages , 100%= subsection total)

NACE	Industry:	Fixed assets	Tur-nover	Ex-ports	Invest-ment	Value added	Pro-fits	Lo-sses	La-bor
E	Manufacturing (Total) [2)]	9,5	14,4	13,4	23	12,9	24,2	8,9	7,8
EA	Food, beverage and tobacco	17,7	26,4	7,9	32,9	21,8	35,3	24,0	11,3
EB	Textile and textile fabrics	17	22,1	28,4	22,6	18,5	32,2	6,5	15,3
EC	Leather and footwear	13,8	28,6	22,1	46,4	19,0	48,2	10,2	14,0
ED	Wood working industry (except furniture)	7,9	13,5	21,8	30,1	8,1	16,4	10,8	6,6
EE	Cellulose, paper, cardboard and products	6,4	12,5	21,7	12	11,8	10	3,7	6,1
EG	Chemical and synthetical and artificial fibers	18	26	24,7	49,6	31,4	38,5	22,7	13,2
EI	Other products made of non-metallic minerals	19,9	11,7	13	36,9	11,9	6,7	16,0	10,0
EM	Electrical and optical equipment	27	34,8	27,3	44,5	18,3	40,8	9,0	10,0
EN	Transport vehicles	8,3	5,6	17,6	24,3	6,1	5,1	9,4	4,0

[0)] The share of prevailing foreign-owned capital in the subsections of the table was in 1998 higher than 5%.

[1)] The values represent the percentages got/realized by the prevailing foreign-owned companies, percentages calculated from the total of the respective parameter at subsection level.

[2)]The manufacturing industry, as a whole, were introdused in the table to allow the comparisons.

The FOR sector is not significant for the manufacturing subsections not enclosed in the Table V.1 (because of their low share). The conclusions concerning the competitiveness of the subsections in Table V.1 will be explicitly formulated at the level of the corresponding NACE divisions.

G2. Let get back to Dunning's conjecture according to which the economies in the first stage of development of their competitive advantages –that based on the production factor endowment– are likely to receive FDI inflows mainly in the sectors characterized by a low value-added, based on the low cost of the labor force or of the raw materials (see the first two stages, **S1** and **S2**, described in Chapter I). Table V.1 shows that, in the case of Romania, FDI orientation is not predominantly the one characteristic to the first stage of development of the recipient economies, but to the second one. The textile industry, the leather and footwear industry, the food industry, the chemical industry are branches characteristic –according to Dunning's conjecture– to the FDI targets in the economies in the second stage of development. More than this, foreign capital has significant contributions

even in more complex manufacturing activities, such as the electrical and optical equipment industry or the industry of transport vehicles.

It is certain that the indications given by the FDI orientation are not enough to draw reliable conclusions concerning the stage of development of the competitive advantages in Romania. As we showed in Chapter I, the conclusion of the analysis concerning the foreign trade and the competitiveness of the Romanian economy carried on by Valentin Cojanu (Cojanu, 1997) was that this country was in the first stage of development.

Otherwise, a recent study (Daianu and others, 2001) confirms, by virtue of the revealed comparative advantages analysis, that the Romanian economy has such clear advantages in the wood working industry (except furniture) as well as temporary comparative advantages in the textile industry and in the leather and footwear industry. Temporary because, in Daianu's opinion, it is expected that on a middle term, the too high costs of the labor force –caused not by too high salaries but by too low productivity– to compromise the respective comparative advantages.

It should be a mistake to assert the idea that Romania is in the second stage of development of its competitive advantages (given the general state of the economy). Nevertheless, one could say that FDI anticipates the development process, giving important signs concerning its direction.

G3. Foreign direct investments in Romania are mainly located in low value added activities (see the "value added/turnover" rate in Table A2 in Annex 2). At the same time, at firm level, the share of imported materials is the highest for the FOR companies. These are two of the explanations of the low macroeconomic impact of foreign capital on the restructuring processes in the Romanian economy.

G4. In Romania's case there are some obvious competitive advantages of the FOR companies (comparing to the companies controlled by the domestic capital): *their labor and capital productivity are higher, their frequency and dimension of export activities are higher, their investment effort is highly superior and their capacity of using subcontracting is superior.*

G5. The above superlatives don't lead – as expected – to a decrease of the share of the unprofitable firms within the FOR sector. There is *a polarized structure of the foreign-controlled companies* consisting in a group of performance firms and, on the other hand, in a consistent group of unprofitable firms. Indeed, 32% of the FOR companies are unprofitable, accounting for 38% of the total fixed assets of the foreign sector. The share of the losses of the unprofitable foreign-controlled companies is impressive: 23% of the total turnover (against 17-18% for the STATE and PrivRO companies). Compared to the FOR sector, the polarization of the PrivRO sector is smaller. The economic performance indices have got close but lower values than those of the FOR companies, but, on the other hand, the size of the losses in the PrivRO sector is significantly smaller (24% of the PrivRO firms are unprofitable, accounting for 30% of the total fixed assets).

G6. The highest level of exports is registered by the loss-making FOR companies. The massive exports of the unprofitable firms are to be found in the industries in which the profitable FOR firms export a lot, as well. This means that the losses mustn't be attributed to the export activities, as such, but to other aspects which might be related, among other causes, to the strategies of the parent companies, including the using of transfer prices (see §III.6).

G7. The conclusion G6 is supported by an analysis carried on at firm level (which hasn't been mentioned up to now). According to this analysis, the companies that exported more than 75% of their production and, besides, registered losses in 1998 are located, most of them, irrespective of their ownership type, in the subsections of Table V.1. More precisely, this category of firms is

mainly to be found in the following subsections: in subsection EB (the textile industry and of textile fabrics, NACE divisions 17 and 18, especially the NACE group 182 –clothing and underwear made of textile fabrics); in subsection EC (the leather and footwear industry, NACE group 193 – footwear); in subsection ED (the wood working industry, except furniture; and in subsection EK (metal structures, metal products industry, except machines, equipment, installations). This is surprising because the industries mentioned above host the largest exports (with the exception of EK) and the largest profits.

G8. At the level of the manufacturing industry as a whole (see the first line of Table A4), it has been found that for all the three types of prevailing ownership, *the companies relatively small have a higher probability of being profitable*. This result is valid for some divisions as well: Div25, Div27, Div28, Div34 and Div35. On the contrary, there are three divisions for which the large firms have a higher probability of being profitable for all the three types o prevailing ownership: Div15, Div18, Div32. (The key to the NACE divisions is presented in Table A1, Annex 2)

G9. The examination of the allocation diversity ratios has shown major discrepancies between the STATE, PrivRO and FOR sectors, but also internal discrepancies of the FOR sector, already mentioned at G5:

- the allocation of resources in the FOR sector is mainly made towards the industries with a strong profit-making sector but also in industries with high losses in the loss-making sector, in industries with high labor productivity, high exports and in industries with a high fixed assets endowment;
- the allocation of resources in the PrivRO sector is mainly made towards the industries with high profits, low losses, low labor productivity, low exports, industries with a low fixed assets endowment;
- the STATE resources are mainly allocated towards the branches with low profits and high losses, the lowest labor productivity, high exports but a high fixed assets endowment.

As a conclusion, the present configuration of FDI inflows influences the competitiveness of the Romanian economy not only at the level of recipient companies but also at macroeconomic level by means of the resource allocation process. In other words, the FDI inflows also play a role, even if, according to the G3 conclusion, a small one, in the macroeconomic restructuring.

V.3 Competitiveness, by the prevailing ownership type

In order to evaluate competitiveness, a few of the indices previously mentioned were corroborated (that is: the weight of the profitable sector, the weight of the unprofitable sector, the size of profits in the profitable sector, the weight of exports in the profitable sector). The evaluation criteria that we suggest are described below (they can be, obviously, modified by the reader, who has, in Annex 2, all the necessary information for his own analysis).

The definition of the competitiveness criterion

We classify a sector (a specified part of a well-defined firms set) in one of the following four categories:

i) A sector of a set of firms is *not-significant* if it accounts for less than 5% of the fixed assets of the set of firms which it belongs to.

ii) A sector of a set of firms is *locally-competitive* if it accounts for at least 5% of the fixed assets and if at least 50% of these assets belong to the profitable firms. (Or –expressed more suggestive even if less precisely– the sector has a significant weight and the majority of its assets are to be found in the profitable area.)

iii) A sector of a set of firms is *competitive* if it is locally-competitive and, in addition, its profitable firms export at least 25% of the production. (Thus, "locally-competitive" means "competitive on

local markets, exclusively", while the meaning of "competitive" is "competitive on national and international markets".)
iv) A sector of a set of firms is *not-competitive* if it has a significant share but it is not locally competitive (or, in other words, it accounts for more than 5% of the fixed assets of the set but less than 50% of these assets belong to the profitable firms).

The above classification scheme is defined according to the principle "the majority decides" (or, using a well-known saying "the winner takes it all"): if the unprofitable firms are in majority (by the aggregated share of the fixed assets), then the sector is qualified as not competitive, and, on the contrary, if the profitable firms are in majority, than the sector is qualified as (locally-)competitive. A separate analysis of the profitable and unprofitable firms has been necessary for the accuracy of the respective analysis. Reducing the accuracy of the analysis might not be important for an economy with small losses but can be very important for an economy with high losses. Or, this is the situation of the 1998 Romania: 1) half of the capital of the manufacturing industry was caught in unprofitable activities; 2) in most cases, the discrepancies between the profitable and the unprofitable sector of the same set of firms (set identified by division and the prevailing ownership type) cannot be explained by accidental events or more or less favorable economic circumstances.

C1. According to these criteria, the FOR sector, the sector of the manufacturing firms with prevailing foreign capital, is locally-competitive. (Indeed, 68% of the firms are profitable and account for 62% of the total fixed assets of FOR; the profitable firms account for 78% of the FOR turnover; for the profitable sector of FOR, the profits, exports and investments represent 9.98%, 21.51% and 30.18% of the turnover).

The STATE sector of the manufacturing industry is not-competitive. (Indeed, only 45% of the firms are profitable and account for 48% of the total STATE fixed assets; the profitable firms account for 44% of the STATE turnover; for the profitable part of the STATE sector, the profits, exports and investments represent 4.56%, 23.33% and 5.14% respectively of the turnover).

The PrivRO sector of the manufacturing industry is locally-competitive. (Indeed, 76% of the firms are profitable and account for 70% of the total fixed assets of PrivRO; the profitable firms account for 82% of the PrivRO turnover; for the profitable part of the PrivRO sector, the profits, exports and investments represent 9.83%, 23.11% and 8.30% respectively of the turnover).

The conclusion is clear: the STATE sector is not-competitive. The PrivRO and FOR sectors are locally-competitive and their competitiveness doesn't differ significantly.

C2. We'll detail at division level the *analysis of the competitiveness in FOR sector, the sector of the firms with prevailing foreign capital*. (The key to the NACE divisions is presented in Table A1, Annex 2).
-At the level of 1998, the FOR sector *is not-significant* in the following divisions: Div23, Div25, Div27, Div28, Div29, Div30, Div33, Div35, Div37. These divisions were analyzed in Chapter III, but given their low weight, we cannot discuss the problem of the FOR sector competitiveness.
-The FOR sector is *locally-competitive* in:
a) Div15, Div16, Div21, Div22, Div26, Div32. These divisions are characterized by a large share of the profitable firms in the FOR sector, low or moderate profit, non-significant exports. We mention that for each of the above divisions, the maximum share of the profits is to be found in the STATE or PrivRO sector, but not in the FOR one.
b) Div31. The share of the profitable firms is of 66%, the profits attaining some of the highest values (approximately 22% in the turnover), the level of exports is moderate, much inferior to the STATE and PrivRO sectors.
-The FOR sector is *competitive* in the following divisions:

a) Div17, Div18, Div19, Div20, Div24. The share of the FOR profitable sector is high (84-85%) in Div18 and Div19 and moderate (61-65%) in Div17, Div20, Div24; the profit register values over the average level for the division (some of the highest values –between 17% and 20%– in Div18, Div19, Div20); the share of exports is high both in the profitable area and in the unprofitable one (the maximum value: 85% in Div18).
b) Div34, Div36. The share of the profitable firms in the FOR sector is close to 100% but the profits register moderate values, much inferior to those of the PrivRO sector; the level of exports is high (30%, 50%, respectively).

C3. Using the same methodology, we'll evaluate *the competitiveness of the PrivRO sector, that of the firms with prevailing domestic private capital.*
-The PrivRO sector is *not significant* in Div16, Div30.
-The PrivRO sector is *not competitive* in Div21, Div36. The situation of the domestic private sector in Div36 (mainly of furniture) is remarkable: the exports represent almost 60% of the turnover, the profit is of 10%, over the average, but the share of the profitable firms of the PrivRO sector is of 48%.
- The PrivRO sector is *locally-competitive* in: Div15, Div22, Div23, Div24, Div25, Div27, Div28, Div29, Div32, Div33, Div34, Div35.
- The PrivRO sector is *competitive* in: Div17, Div18, Div19, Div20, Div26, Div31, Div37.

C4. Similarly, we'll asses *the competitiveness of the STATE sector, the sector of the prevailing domestic state capita*.
-The STATE sector is *not-significant* in Div37.
-The STATE sector is *not competitive* in Div15, Div17, Div18, Div19, Div23, Div24, Div25, Div26, Div27, Div28, Div30, Div33, Div34, Div36. The situation of the STATE sector from Div18 (the ready-made clothes industry) is remarkable in a negative sense: exports represent approximately 58% of the turnover, the share of the profitable firms of the STATE sector is of only 35% and the profit is of only 1.82%, while for the profitable sector of PrivRO and FOR the profit is of approximately 17%.
- The STATE sector is *locally-competitive* in: Div16, Div20, Div21, Div22, Div31, Div32.
- The STATE sector is *competitive* in: Div29, Div35.

C5. At this point, we'll evaluate the *competitiveness of the manufacturing industry as a whole*. The same methodology will be used, except for the condition *i)*, which is no more necessary.
- The manufacturing industry is *not competitive* in Div17, Div21, Div23, Div24, Div27, Div28, Div30, Div33, Div36. A part of the divisions included in the above list have a common, noticeable characteristic: high shares of exports and, at the same time, high shares (over 50%) of the unprofitable firms. Indeed: Div17 (the textile industry and of textile fabrics) exports approximately 41% of the turnover, but the share of the profitable sector (described as the share of the fixed assets belonging to the profitable firms) is of 44%; Div24 (the chemical and synthetic and artificial fibers industry), exports approximately 30% of the turnover, but the share of the profitable sector is of 40%; Div27 (the metallurgical industry), exports approximately 44% of the turnover, but the share of the profitable sector is of only 15%; Div36 (the production of furniture and other non-classified activities), exports approximately 60% of the turnover, but the share of the profitable sector is of 47%.
- The manufacturing industry is *locally-competitive* in the divisions: Div15, Div16, Div22, Div25, Div31, Div32, Div34.
- The manufacturing industry is *competitive* in the divisions: Div18, Div19, Div20, Div26, Div29, Div35, Div37.

It must be stressed that the abolition of customs barrier between Romania and EU will tend to change the competitiveness positions of firms, the locally-competitive ones, at least, facing the risk of losing their clients.

V.4 Final considerations

Before any considerations concerning the competitiveness of the manufacturing foreign-controlled companies, we wish to emphasize three general aspects.

1. The first one refers to the metallurgical industry. Given the large share of this industry in the economy and its major impact on other economic activities, its lack of competitiveness is affecting the whole economy. To a great extent the situation of the manufacturing industry will depend on solving the problem of this sector.
2. Second, we wish to stress that at the level of 1998 but also in the next two years as well, a major drawback of the Romanian economy consisted in the high level of unprofitability: 33% of the firms were unprofitable, accounting for 50% of the capital in the manufacturing industry. The situation is complicated by the big variety of the causes of the companies' losses: objective circumstances, manipulation of the accounts aiming to fiscal purposes (especially in the domestic private sector), managing the companies according to some personal interests (especially in the STATE sector), lack of loyalty towards the own firm (especially in the STATE and FOR sectors), the practice of transfer prices, lack of management capabilities, etc.
3. The ambiguities, gaps and legislative errors, as well as the regulation deficiencies of the Romanian economic environment encourage the anti-economic behavior and the insufficiently prepared privatization.

The foreign sector in the Romanian manufacturing industry is mainly established in industries that locate competitive advantages. However, these industries –according to the development stage of Romania based on the production factors– are characterized by low value added (the wood working industry, the textile industry, the ready-made clothes industry, the leather and footwear industry). Nevertheless, the foreign capital is present as well in industries with relatively higher level of processing, such as the production of furniture, the industry of road transport vehicles or the chemical industry, showing the existing of potential advantages in these industries.

Using the above presented competitiveness criteria (see **C2** in §V.3 of the present chapter), our analysis indicates that the *foreign sector in the Romanian manufacturing, as a whole, is locally-competitive*. Moreover, there are no divisions where the foreign sector should be significant but non-competitive. The foreign firms are better than those controlled by the domestic capital from the point of view of the labor and capital productivity, of the export capacity, of the investment intensity, of the ability of using subcontracting. On the other hand, however, *the structure of the foreign sector is less homogeneous and balanced than that of the domestic private sector.* Indeed, there is an important number of companies that register high losses, exporting intensively in the industries that locate competitive advantages for Romania, industries in which other firms (both with foreign and with Romanian private capital) operate with high profits. It can be asserted that, in the case of these companies, factors that characterize them, related to a poor management, or to their strategy, or to making use of transfer prices induce their losses.

It must be stressed, otherwise, that in 1998, the shares of profits of the foreign and Romanian private sectors were the same, while the share of losses was higher in FOR sector. Given the significantly higher investments, it should be expected that in the following years the economic efficiency of the foreign capital to grow more strongly.

As a general conclusion, at present, the foreign sector has a greater ability to take advantage of the low costs of some basic production factors, such as the low qualified labor force or the raw

materials, either under objective terms –when they register profits – or under subjective terms – when export intensively and with large losses. At the same time, FDI have important contributions, though in relative terms because of their low share in total fixed assets, to exports, investments, spillover effects due to subcontracting. Still, the present configuration of FDI in the Romanian manufacturing industry, characterized by a low stock value and by the location in industries which cannot generate important horizontal spillover effects, doesn't allow for a significant restructuring impact.

Possible research developments

Our analysis didn't go beyond the level of NACE divisions and didn't approach the mutual influences between industries. One possible direction of developing the present research consists in *identifying the competitive clusters of activities in Romanian economy (not only industrial activities!).*

In order to monitor the FDI impact in the Romanian economy and, implicitly, to turn into account this study, it would be necessary to carry out a dynamic analysis, on the basis of a periodically enrichment of the data-base. A dynamic analysis would make possible the identification of the middle and long term trends of the phenomenon. It would also supply the necessary elements for a coherent policy of using the FDI inflows as instruments of economic restructuring, and also for rethinking the role of the domestic private capital.

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APPENDIX

ANNEX 1. Methodological remarks: the definitions of used indices and ratios

Def.1 $RA_k(X:Y)$, the aggregate ratio of the variables X and Y conditioned by f=k, the value "k" of the factor f is defined by:

$$\mathbf{RA_k(X:Y) = X_kY / Y_kX =(X_k/X) / (Y_k/Y)=(X_k/Y_k) / (X/Y),}$$

where: X (respectively Y) is the sum of the ***X*** (respectively ***Y***) values for all entities in the aggregation set (in our case, the aggregate sets could be the firms from: manufacturing industry, a NACE subsection or division);

X_k (respectively Y_k) is the sum of the ***X*** (respectively ***Y***) values computed for all entities with the value f=k (in our case, the factor f is the ownership type); the sum is calculated in the aggregate set. For edit reasons, the tables in the appendix will express the aggregated ratios in percentages, that is the value 1 is to be written 100%.

Comments about $RA_k(X:Y)$

1) The second equality of the above definition is more complicated but it has the advantage to be more intuitive: $RA_k(X:Y)$ allows to compare the impact of the factor on the variables ***X*** and ***Y***.
2) There is no connection between the values of the ratio and the weight of the level of the factor in the aggregation set.
3) If $RA_k(X:Y) = 1$ then *X* and *Y* variables are proportional: $X_k / X=Y_k / Y$.
4) If the ratio $RA_k(X:Y) >1$, then there is a level "j" of the factor such that $RA_j(X:Y) <1$.
5) The following series of equivalent relations may be written:

$$(X_k/X):(Y_k/Y)>1 \Leftrightarrow X_k/X>Y_k/Y \Leftrightarrow X_k/Y_k > X/Y.$$

The above relations could be viewed in two ways. Thus, a higher than 1 value corresponding to the "k"-level of the factor is showing that: a) the "k" level of the factor influences to a greater extent the values of the variable ***X*** than the values of the variable ***Y***; b) the ratio between the aggregated values conditioned by the "k" level of the factor is higher than the ratio between the unconditionally aggregated values (computed within the entire aggregate set, irrespective the factor values). The last statement could be expressed intuitively but less rigourously: the "k" level of the factor favors higher values of the ratio X/Y.
6) If ***X*** describes the production and ***Y*** describes a production factor, then X/Y describes the productivity of the production factor ***Y***.

Def.2 The allocation diversity ratio attached to the index P is defined by:

$$\text{DA [P]} = \sum_{i=1}^{n} \frac{p_i}{P} \times \frac{a_i}{A}$$

where: i = summation index;

n = the number of entities considered in the sum; the entities must achieve a partition of the reference set, i.e. must be exhaustive and mutually exclusive (example: the reference set is the manufacturing industry, the entities are all the 23 divisions of manufacturing industry, n=23)

p_i = the value of the performance index P in the entity "i";

P = the value of the performance index P in the reference set;

a_i = total value of assets in division "i" for OT;

A = total value of assets in the reference set.

ANNEX 2. Synoptic tables

Table A1. The NACE subsections and divisions of the manufacturing industry

SUBSEC-TION	DIVI-SION	DESCRIPTION
EA	**Div15**	Industry of food products and drinks
EA	**Div16**	Tobacco industry
EB	**Div17**	Textile industry and of textile products
EB	**Div18**	Industry of textile, fur, leather ready-made clothes
EC	**Div19**	Leather and footwear industry
ED	**Div20**	Wood working industry (except production of furniture)
EE	**Div21**	Industry of cellulose, paper, cardboard and of paper and cardboard goods
EE	**Div22**	Publishing houses, polygraphs and type copying
EF	**Div23**	Industry of oil processing, coking and nuclear fuel treatment
EG	**Div24**	Chemical industry and of synthetic or artificial fibers
EH	**Div25**	Rubber and plastics manufacture
EI	**Div26**	Industry of other non-metallic mineral products
EJ	**Div27**	Metal-working industry
EK	**Div28**	Industry of steel frame constructions and metal products (except machines, equipment and installations)
EL	**Div29**	Industry of machines and equipment
EM	**Div30**	Industry of office and computing technique equipment
EM	**Div31**	Industry of electric equipment and machines
EM	**Div32**	Industry of T.V. and radio sets and communication equipments
EM	**Div33**	Industry of accuracy medical apparatuses and instruments, optics and watches
EN	**Div34**	Industry of means of road transport
EN	**Div35**	Industry of other means of transport
EO	**Div36**	Production of furniture and other non-classified activities
EO	**Div37**	Wastes recycling

Table A2. Some operation ratios in manufacturing, by NACE subsections, year 1998 [0] (percentages)

NACE COD	The ratio of Labor productivity [1,2]			The ratio Value added/Turnover [1]		
	STATE	Priv RO	FOR	STATE	Priv RO	FOR
Total E	96	93	164	93	112	91
EA	105	80	192	142	92	83
EB	76	102	121	91	108	84
EC	86	96	136	106	115	67
ED	68	105	123	120	104	60
EE	90	97	193	102	100	94
EF	122	53		115	60	
EG	64	119	237	77	131	121
EH	74	103	101	103	101	63
EI	82	105	119	90	104	101
EJ	103	67	35	102	78	24
EK	81	111	136	108	104	57
EL	92	118	204	101	101	84
EM	79	101	183	147	113	53
EN	97	102	151	96	115	109
EO	72	109	119	101	103	64

[0] The source of crude data is INSSE: a sample of 2799 manufacturing companies with at least 50 employees.
[1] 100% = the index value for the line (subsection, or section) as a whole. The ratio is computed for each (sub) section as the proportion between the specified ownership type index value and the index value irrespective the ownership type (see Def.1, Annex 1).
[2] This is the proportion *Value Added/ Employees count.*

Table A3. The distribution of turnover and fixed assets for profit-making firms, aggregated values by prevailing ownership and NACE divisions (the manufacturing industry, year 1998) [1)]

NACE COD **Subsection/ Division**	SPT, The share of profit-making turnover (%) [2)]				SPA, The share of profit-making fixed assets (%) [2)]				RKPR, Aggregated productivity of capital for loss-making firms [3)]			
	Total	**STATE**	**PrivRO**	**FOR**	**Total**	**STATE**	**PrivRO**	**FOR**	**Total**	**STATE**	**PrivRO**	**FOR**
Section E	64	44	82	78	49	36	70	62	0.54	0.72	0.51	0.46
EA Div15	78	[4)] 59	82	81	64	48	72	74	0.50	0.64	0.56	0.67
EA Div16	100	100	[5)]	100	100	100		100				
EB Div17	63	40	70	89	44	26	59	61	0.46	0.53	0.62	0.19
EB Div18	90	54	95	84	85	35	90	85	0.63	0.46	0.47	1.08
EC Div19	70	36	67	89	55	45	50	84	0.52	1.45	0.49	0.65
ED Div20	68	67	65	76	56	55	55	61	0.60	0.60	0.66	0.49
EE Div21	52	57	38	100	46	61	21	100	0.79	1.18	0.43	
EE Div22	89	100	87	73	85	100	78	65	0.70		0.53	0.69
EF Div23	33	9	99		15	4	95		0.36	0.42	0.19	
EG Div24	69	58	82	81	40	33	50	66	0.30	0.36	0.22	0.46
EH Div25	68	57	69	71	56	34	61	57	0.60	0.39	0.70	0.54
EI Div26	80	49	94	67	74	48	89	73	0.71	0.96	0.52	1.33
EJ Div27	21	20	56	0	15	14	56	0	0.66	0.65	1.00	
EK Div28	62	48	77	20	41	44	68	2	0.43	0.85	0.63	0.08
EL Div29	69	62	90	57	59	57	84	26	0.65	0.81	0.58	0.27
EM Div31	88	69	98	84	78	53	96	66	0.48	0.51	0.49	0.37
EM Div32	98	98	96	100	93	95	99	85	0.27	0.39	4.13	
EM Div33	69	29	86		42	23	87		0.33	0.73	1.09	
EN Div34	75	67	86	100	57	40	74	100	0.44	0.33	0.46	
EN Div35	69	68	92		54	56	85		0.53	0.60	0.49	
EO Div36	70	51	74	84	47	40	48	80	0.38	0.64	0.32	0.76
EO Div37	86		87	100	60		62	100	0.24		0.24	

[1)] The source of crude data is INSSE: a sample of 2799 manufacturing companies with at least 50 employees.

[2)] 100%= total value (profit-making and loss-making firms) for specified subsection and specified ownership; see the example [4)], below.

[3)] 1= aggregate capital productivity of the profit-making firms, for subsection and specified ownership type; see the definition of **RKPR**, *the capital productivity ratio* as the proportion between the aggregated capital productivity of the loss-making and profit-making sectors.

[4)] As it concerns STATE firms of the subsection EA, 59% from aggregate turnover belongs to profit-making firms (and respectively, 100%-59% to loss-making firms). For all STATE firms (irrespective the subsection) the percentage is 44%, and for all the firms from EA (irrespective the ownership type) the percentage is 78%.

[5)] There are no firms for specified subsection and ownership type.

Table A4. The frequency of profit-making firms and the capital ratio, by prevailing ownership and NACE divisions (the manufacturing industry, year 1998)[1)]

NACE COD **Subsection/ Division**	The sample structure: firms count				The frequency of profit-making firms **(%)** [2)]				Average capital of the loss-making firms RK [3)]			
	Total	**STATE**	**Priv RO**	**FOR**	**Total**	**STATE**	**Priv RO**	**FOR**	**Total**	**STATE**	**Priv RO**	**FOR**
Section E	2780	717	1680	383	67	45	76	68	2,09	1,46	1,33	1,31
EA Div15	562	142	349	71	59	36	69	58	0,82	0,61	0,88	0,48
EA Div16	2	1	0	1	100	100		100	[4)]			
EB Div17	225	71	132	22	52	27	65	59	1,40	1,04	1,30	0,92
EB Div18	349	12	231	106	81	33	86	76	0,77	0,93	0,69	0,57
EC Div19	149	8	83	58	73	38	72	79	2,23	0,73	2,61	0,73
ED Div20	130	13	95	22	70	54	76	55	1,83	0,95	2,56	0,85
EE Div21	36	11	20	5	61	45	60	100	1,84	0,53	5,64	
EE Div22	68	8	53	7	76	100	77	43	0,57		0,96	0,40
EF Div23	10	4	6		60	25	83	0	8,50	8,00	0,26	
EG Div24	102	39	47	16	58	31	74	75	2,06	0,90	2,92	1,55
EH Div25	64	11	44	9	63	36	66	78	1,31	1,11	1,24	2,64
EI Div26	160	48	105	7	76	58	86	57	1,13	1,52	0,74	0,49
EJ Div27	74	49	21	4	43	33	71	25	4,32	2,98	1,96	
EK Div28	180	52	117	11	68	52	79	36	3,11	1,37	1,73	0,28
EL Div29	216	121	88	7	69	62	81	57	1,58	1,23	0,80	3,79
EM Div30	1	1			0	0						
EM Div31	51	14	27	10	76	50	93	70	0,92	0,89	0,52	1,20
EM Div32	20	6	9	5	85	83	89	80	0,43	0,26	0,08	0,71
EM Div33	27	11	16		59	27	81	0	2,01	1,26	0,65	
EN Div34	61	22	36	3	79	64	86	100	2,79	2,63	2,18	
EN Div35	50	30	19	1	74	67	89	0	2,42	1,57	1,50	
EO Div36	213	41	155	17	62	32	70	71	1,87	0,70	2,49	0,60
EO Div37	30	2	27	1	70	0	74	100	1,56		1,75	

[1)] The source of crude data is INSSE: a sample of 2799 manufacturing companies with at least 50 employees.
[2)] 100%= total frequency for specified subsection and specified ownership type.
[3)] 1= the average capital of the profit-making firm, for specified subsection and ownership type. See the definition of the capital ratio, RK: the proportion between the average capital of the loss-making firms and the average capital of the profit-making firms.
[4)] There are no firms for specified subsection and ownership type.

Table A5. The share of losses and profits in turnover, by prevailing ownership and NACE divisions (the manufacturing industry, year 1998)[1)]

NACE COD **Subsection/ Division**	Loss-making firms: Losses share in turnover (%) [2)]				Profit-making firms: Profit share in turnover (%) [3)]				Profitability [4)]			
	Total	**STATE**	**PrivRO**	**FOR**	**Total**	**STATE**	**PrivRO**	**FOR**	**Total**	**STATE**	**PrivRO**	**FOR**
Section E	18.03	17.66	17.12	22.78	8.17	4.56	9.83	9.98	-1.29	-7.85	5.03	2.77
EA Div15	25.28	43.43	17.20	21.19	8.13	7.91	8.37	7.75	.83	-13.05	3.64	2.26
EA Div16	[5)]				4.96	5.41		2.03	4.96	5.41		2.03
EB Div17	27.76	36.45	19.80	27.07	6.26	3.07	7.02	6.68	-6.17	-20.51	-1.07	2.93
EB Div18	15.68	19.24	25.90	9.58	16.60	1.82	16.63	17.18	13.44	-7.91	14.60	12.81
EC Div19	18.36	22.39	17.18	14.47	14.16	3.71	10.01	20.31	4.54	-12.93	1.03	16.38
ED Div20	21.04	40.88	15.91	33.64	9.77	2.52	7.53	19.29	-.22	-11.70	-.66	6.73
EE Div21	24.15	44.97	9.76		7.70	2.73	13.56	11.35	-7.62	-17.61	-.87	11.35
EE Div22	12.28		13.30	10.77	17.68	29.96	11.43	8.42	14.28	29.96	8.16	3.23
EF Div23	22.84	22.86	13.43		2.73	.02	3.39		-14.53	-20.89	3.29	
EG Div24	23.38	23.23	12.43	38.61	8.49	2.19	14.64	11.38	-1.37	-8.59	9.75	1.80
EH Div25	11.24	19.10	10.29	8.79	6.08	.57	5.96	16.53	.52	-7.98	.89	9.31
EI Div26	13.95	15.22	18.34	3.41	10.85	3.81	13.04	3.75	5.94	-5.83	11.26	1.39
EJ Div27	8.79	8.13	29.48	12.13	3.96	3.78	5.32	13.91	-6.16	-5.75	-10.08	-12.02
EK Div28	30.94	20.69	20.46	69.37	10.75	3.84	12.94	11.15	-4.95	-8.98	5.24	-53.40
EL Div29	22.38	22.53	25.77	18.35	5.72	4.52	7.49	8.21	-3.11	-5.81	4.24	-3.09
EM Div31	20.27	26.73	17.72	5.50	10.47	6.73	8.12	21.87	6.84	-3.49	7.60	17.58
EM Div32	53.93	8.62	61.03	82.13	9.83	15.59	9.24	7.99	8.64	15.11	6.32	7.62
EM Div33	19.55	26.20	5.38		8.78	5.08	9.30		-.04	-17.17	7.23	
EN Div34	27.18	28.12	17.03		3.03	1.31	9.19	3.30	-4.63	-8.31	5.39	3.30
EN Div35	23.65	22.52	1.59	35.73	8.51	6.67	14.38		-1.48	-2.67	13.10	-35.73
EO Div36	21.72	23.15	19.40	52.38	8.84	3.94	10.05	5.58	-.19	-9.26	2.54	-3.79
EO Div37	4.03	3.98	4.03		7.55		7.57	6.66	5.92	-3.98	6.05	6.66

[1)] The source of crude data is INSSE: a sample of 2799 manufacturing companies with at least 50 employees.
[2)] 100%= the total value of the turnover of *loss-making* firms, aggregated for specified NACE division and specified ownership type.
[3)] 100%= the total value of the turnover of *profit-making* firms, aggregated for specified NACE division and specified ownership type.
[4)] 100%= the total value of the turnover, aggregated for specified NACE division and specified ownership type. Profitability = 100 x (profits-losses) / turnover.
[5)] There are no firms for specified subsection and ownership type.

Table A6. The share of exports in turnover, by losses/profits, prevailing ownership and NACE divisions (the manufacturing industry, year 1998) [1)]

NACE COD **Subsection/ Division**	Loss-making firms: exports share in turnover (%)[2)]				Profit-making firms: exports share in turnover (%)[3)]				All firms: exports share in turnover (%)[4)]			
	Total	**STATE**	**Priv RO**	**FOR**	**Total**	**STATE**	**Priv RO**	**FOR**	**Total**	**STATE**	**Priv RO**	**FOR**
Section E	32.25	33.69	24.92	36.03	22.89	23.33	23.11	21.51	26.26	29.12	23.44	24.71
EA Div15	3.88	.89	7.01	1.24	2.82	3.74	3.94	.35	3.05	2.58	4.51	.52
EA Div16	[5)]				.00	.00		.00	.00	.00		.00
EB Div17	40.46	37.36	40.25	88.60	40.97	31.89	39.85	57.18	40.78	35.16	39.97	60.68
EB Div18	78.09	37.71	63.93	93.38	77.60	75.99	74.42	84.21	77.65	58.32	73.92	85.70
EC Div19	55.99	48.87	50.95	92.78	45.74	38.06	52.45	39.68	48.77	44.95	51.96	45.69
ED Div20	44.36	33.59	42.37	61.39	43.90	19.73	50.57	34.74	44.05	24.27	47.70	41.06
EE Div21	29.85	32.02	28.34		10.83	15.34	2.57	14.03	19.97	22.45	18.51	14.03
EE Div22	.00		.01	.00	1.45	.00	2.88	.06	1.29	.00	2.50	.05
EF Div23	38.91	39.00	.00		3.11	.00	3.86		27.28	35.65	3.84	
EG Div24	27.11	31.31	6.42	30.35	29.47	40.03	13.99	31.92	28.74	36.33	12.62	31.62
EH Div25	16.38	22.20	16.24	2.55	19.87	24.31	20.14	8.04	18.75	23.39	18.93	6.48
EI Div26	17.54	11.23	46.48	9.79	25.32	15.63	28.26	16.16	23.78	13.40	29.29	14.06
EJ Div27	38.24	38.40	5.82	50.66	43.82	46.53	20.99	94.29	39.39	40.02	14.28	50.86
EK Div28	35.72	22.02	46.83	43.98	18.73	12.26	21.38	4.84	25.13	17.36	27.25	36.22
EL Div29	41.79	41.15	18.36	66.09	26.56	27.48	19.72	54.68	31.34	32.70	19.59	59.53
EM Div31	21.15	21.25	.53	28.27	22.37	20.56	26.88	9.66	22.23	20.77	26.35	12.58
EM Div32	2.15	10.49	.00	.00	8.42	6.14	15.75	4.72	8.30	6.23	15.09	4.70
EM Div33	17.78	22.45	7.82		8.86	20.88	7.15		11.64	21.99	7.24	
EN Div34	5.89	4.04	25.79		9.52	4.47	5.00	30.75	8.60	4.33	8.01	30.75
EN Div35	58.25	54.17	3.25	94.66	34.51	40.02	16.90		41.88	44.54	15.81	94.66
EO Div36	54.78	47.73	56.60	89.12	59.86	49.98	63.28	42.68	58.36	48.88	61.57	50.19
EO Div37	18.81	.00	20.77		26.47		26.86	.00	25.39	.00	26.06	.00

[1)] The source of crude data is INSSE: a sample of 2799 manufacturing companies with at least 50 employees.
[2)] 100%= the total value of the turnover of *loss-making* firms, aggregated for specified NACE division and specified ownership type.
[3)] 100%= the total value of the turnover of *profit-making* firms, aggregated for specified NACE division and specified ownership type.
[4)] 100%= the total value of the turnover, aggregated for specified NACE division and specified ownership type.
[5)] There are no firms for specified subsection and ownership type.

Table A7. Investments share,
by losses/profits, prevailing ownership and NACE divisions
(the manufacturing industry, year 1998) [1)]

NACE COD **Subsection/ Division**	Loss-making firms: The share of investment in turnover (%) [2)]				Profit-making firms: The share of investment in turnover (%) [3)]				All firms : The share of investment in turnover (%) [4)]			
	Total	**STATE**	**PrivRO**	**FOR**	**Total**	**STATE**	**PrivRO**	**FOR**	**Total**	**STATE**	**PrivRO**	**FOR**
Section E	8.41	7.42	10.71	11.58	11.45	5.14	8.30	30.18	10.38	6.36	8.75	26.11
EA Div15	6.72	3.78	7.51	7.51	10.21	12.24	7.19	14.92	9.65	9.48	7.28	13.75
EA Div16	[5)]				5.20	3.59		15.88	5.20	3.59		15.88
EB Div17	12.49	14.96	7.89	47.99	5.97	2.23	6.05	10.26	8.32	9.59	6.60	14.41
EB Div18	11.50	2.94	20.36	8.69	8.21	.52	8.52	7.94	8.54	1.64	9.12	8.04
EC Div19	4.89	6.39	3.06	9.75	7.07	2.05	5.35	9.81	6.45	4.57	4.62	9.80
ED Div20	9.99	1.15	7.75	22.23	5.87	1.25	6.38	5.74	7.20	1.28	6.91	9.65
EE Div21	12.82	.63	24.19		6.30	6.30	6.28	6.39	8.64	4.22	13.82	6.39
EE Div22	5.54		5.23	5.37	15.75	27.40	12.11	9.90	14.94	27.40	11.61	8.68
EF Div23	3.79	2.85			2.48	.13	3.05		3.02	2.61	3.63	
EG Div24	9.62	4.60	7.86	34.71	5.12	3.45	5.08	8.08	6.47	4.14	5.58	13.19
EH Div25	12.59	.68	13.78	1.57	5.93	1.63	5.40	20.84	7.88	1.35	7.84	15.35
EI Div26	7.96	1.97	22.09	15.95	13.59	2.44	14.83	21.76	12.42	2.21	15.22	19.84
EJ Div27	9.15	9.63	4.44	2.68	4.47	4.49	5.34	2.03	8.20	8.67	4.94	2.68
EK Div28	2.11	1.20	3.91	1.24	16.14	3.00	20.31	2.55	10.93	1.98	16.92	1.49
EL Div29	3.58	2.63	16.87	1.31	9.15	7.55	12.70	5.85	7.39	5.66	13.14	3.92
EM Div31	3.21	3.08	7.19	2.15	9.30	1.31	8.49	19.67	8.60	1.84	8.40	16.93
EM Div32	.32	.52			5.88	3.92	7.08	5.35	6.37	3.70	7.64	6.67
EM Div33	101.7	94.42	117.3		3.27	1.04	3.59		33.92	67.46	19.68	
EN Div34	5.63	3.01	34.63		46.83	3.47	5.16	221.5	37.14	3.35	8.88	221.5
EN Div35	8.38	1.79	4.94	36.11	2.66	2.19	4.11		4.24	2.08	4.18	36.11
EO Div36	8.40	.65	10.94	22.69	7.00	3.16	7.31	10.41	7.46	1.96	8.19	12.40
EO Div37	3.12	26.26	1.69		4.16		3.95	18.27	4.06	26.26	3.61	18.27

[1)] The source of crude data is INSSE: a sample of 2799 manufacturing companies with at least 50 employees.
[2)] 100%= the total value of the turnover of *loss-making* firms, aggregated for specified NACE division and specified ownership type.
[3)] 100%= the total value of the turnover of *profit-making* firms, aggregated for specified NACE division and specified ownership type.
[4)] 100%= the total value of the turnover, aggregated for specified NACE division and specified ownership type.
[5)] There are no firms for specified subsection and ownership type.

Table A8. Materials [0] share in turnover, by losses/profits, prevailing ownership and NACE divisions (the manufacturing industry, year 1998) [1]

NACE COD **Subsection/ Division**	Loss-making firms: The share of materials in turnover (%)[2]				Profit-making firms: The share of materials in turnover (%)[3]				All firms : The share of investment in turnover (%) [4]			
	Total	**STATE**	**Priv RO**	**FOR**	**Total**	**STATE**	**Priv RO**	**FOR**	**Total**	**STATE**	**Priv RO**	**FOR**
Section E	69	72	64	55	54	60	52	47	59	67	54	48
EA Div15	64	78	65	46	54	71	59	39	56	74	60	41
EA Div16	[5]				44	37		88	44	37		88
EB Div17	62	65	63	22	53	61	53	45	56	63	56	42
EB Div18	27	40	39	18	17	20	19	13	18	29	20	14
EC Div19	46	48	49	35	43	59	40	45	44	52	43	44
ED Div20	60	62	58	66	49	53	50	47	53	56	53	51
EE Div21	73	84	64		62	74	56	31	67	79	61	31
EE Div22	47		49	45	28	22	28	44	30	22	30	44
EF Div23	72	72	83		75	86	72		73	73	72	
EG Div24	64	62	82	52	56	63	51	52	59	63	56	52
EH Div25	72	69	73	58	62	61	62	57	65	64	65	57
EI Div26	57	59	48	57	51	59	50	46	52	59	50	50
EJ Div27	80	80	95	81	76	78	65	49	80	80	78	81
EK Div28	52	45	57	58	48	53	46	43	50	49	49	55
EL Div29	55	53	57	66	51	51	49	57	52	52	50	61
EM Div31	51	47	47	60	53	53	55	51	53	51	54	52
EM Div32	81	39	95	63	54	38	55	59	54	38	57	59
EM Div33	49	41	68		39	52	38		42	43	42	
EN Div34	67	67	63		68	67	51	84	67	67	53	84
EN Div35	52	51	43	59	50	51	47		51	51	46	59
EO Div36	62	59	63	65	54	56	53	62	56	57	55	63
EO Div37	36	57	34		46		46	9	44	57	45	9

[0] Materials: the value of the raw materials and consumption materials –including power, water and other material expenses.

[1] The source of crude data is INSSE: a sample of 2799 manufacturing companies with at least 50 employees.

[2] 100%= the total value of the turnover of *loss-making* firms, aggregated for specified NACE division and specified ownership type.

[3] 100%= the total value of the turnover of *profit-making* firms, aggregated for specified NACE division and specified ownership type.

[4] 100%= the total value of the turnover, aggregated for specified NACE division and specified ownership type.

[5] There are no firms for specified subsection and ownership type.